Heat pumps and water chillers, YLCC-H and YLCC-42, 62, 82, 102, 122 and 152 (R-407C) with centrifugal fans For indoor installation

Ref.: TYLC-CE2

Technical information

ACCORDING TO ISO 9001 STANDARDS
AENOR
Empresa Registrada
ER-0028/1991

ACCORDING TO ISO 14001 STANDARDS
AENOR
Gestión Ambiental
CGM-97/013

CE

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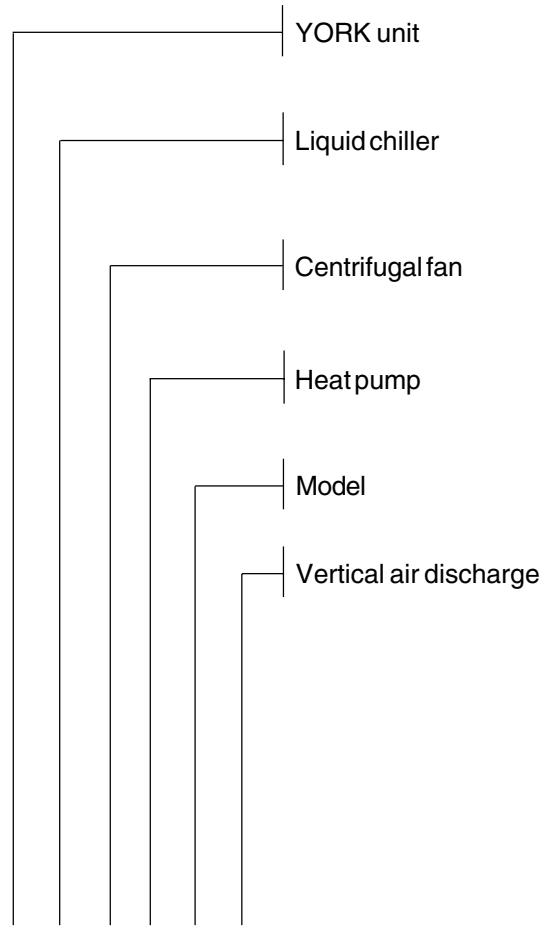
General description

The YLCC water chillers and YLCC-H heat pumps are supplied factory-assembled and with all refrigerant piping and interconnecting wiring ready for installation at the job site. After assembly, the water chillers go through a water test. Possible leaks are also checked once the refrigerant is charged.
The units are made of galvanized steel with anticorrosive nuts and bolts. The panels can be removed for access to internal components. The outer galvanized steel parts are painted with oven-dried enamel (RAL 9002).
Throughout the manufacturing process, all our products follow a quality control process in accordance with the ISO 9001 standard, which is also demanded from the acquired components. The PED pressure equipment directive is also applied.
The water chillers or air-water type heat pumps are designed to be installed in air conditioning systems or industrial processes that require cold (or hot) water or water with glycol. Designed for indoor installation.

Nomenclature



Y LC C H 42 V

General characteristics

The main characteristics of these units are:
- Operating test at factory.
- Ready for job site installation.
- Electronic control of water temperature.
- Two independent circuits (2 stages up to 102) (4 stages 122 and 152).
- Scroll compressors.
- Centrifugal fan (horizontal or vertical air discharge).
- Coaxial exchanger.
- R-407C refrigerant.
- Hydro kit (option).

The accessibility of all components and control system allows quick installation and start-up, as well as trouble-free maintenance.

Technical specifications

Mechanical specifications

Casing

Made of zinc-coated aluminium steel sheeting, finished with oven-polymerised powdered paint, colour RAL 9002. it may be installed directly outdoors.
Their extraordinary protection against corrosion, along with their heavy duty internal structure, make up an extremely robust and resistant unit.

Compressor

The hermetic Scroll compressor is protected internally. Starting will be direct on line. With electronic control. The crankcase heater is activated when the compressor is inoperative. Mounted on anti-vibratory supports.

Evaporator (water)

Coaxial type exchanger, of a large transmission surface, made of finned tubing. Insulated externally.
Maximum operating pressure is 25 bar on the refrigerant side, and 10 bar on the water side.

Condenser (air)

Of a large surface. Made of copper tubing in staggered rows, mechanically expanded within high performance aluminium fins. Maximum operating pressure of the coil is 28 bar (standard unit).

Control of refrigerant to the exchangers

Refrigerant feed is carried out by means of an expansion valve with external pressure equalizer (reversible on heat pump models).

Refrigerant

The units are supplied with an optimum R-407C refrigerant charge for correct operation and maximum output under different working conditions.

Cooling circuit

Made of welded copper tubing and equipped with 1/4" SAE connections on the high and low pressure sides.
This product has been designed, manufactured and tested in accordance with the strictest European safety regulations.
Includes the following components:
- Suction accumulator (heat pump only).
- Filter-dryer.
- Expansion valve.
- 4-way valve (heat pump only).
- Liquid sight glass.
- Liquid accumulator (heat pump only).
- Automatic high and low pressure switches.

Electric and control panel

The electric and control components are factory-controlled,

connected and tested. The electric box has a door with a blocking mechanism and contains the compressor and fan contactors, fuses and electrical protection. Also has IP44 protection.

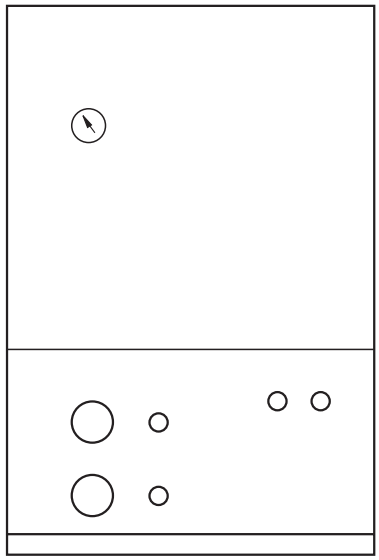
Centrifugal fans
Transmission is by belts and removable core pulleys. The motors are mounted on tensing bases fastened directly to the fan casing.
Two versions are available: with horizontal or vertical air discharge

Controls
So as to achieve maximum energy savings, perfect operation of the equipment and prolong the useful life of same, the YLCC water chillers or heat pump units are equipped with the following controls:
- Electronic thermostat that controls cold water return temperature.
- Electronic antifreeze thermostat.
- High pressure switch, 31 bar.
- Low pressure switch, 2 bar.
- Stage rotation (included in the thermostat).
- Remote terminal unit (optional).
- Timed start.
- Remote control.

Accessories
Hydro kit GH
Includes: Buffer tank, automatic air purger, pressure gauge, automatic 1.5 bar filling valve, expansion vessel, pump, flow switch, drain valve, safety valve and electronic board for interconnection. Available in 200, 260 and 600 litre capacities. There are two versions of GH600: GH600S and GH600P.

Compatible with the following units:

GH200	for size 42
GH260	for sizes 62 and 82
GH600S	for sizes 102 and 122
GH600P	for size 152

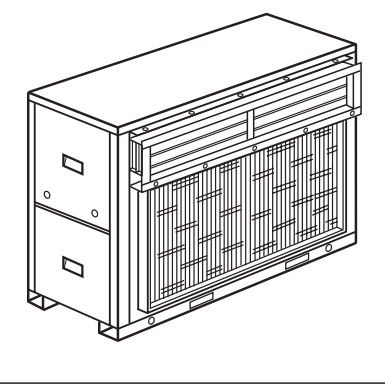


DI buffer tanks
Cylindrical shape and in vertical position. Available in 200, 260 and 600 litre capacities.

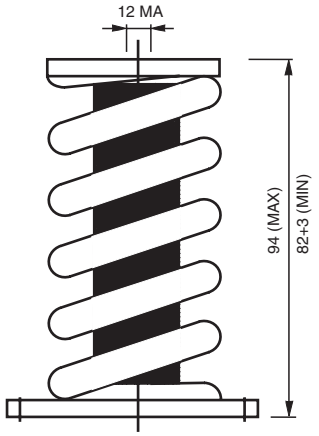
Low ambient kit (factory-mounted, optional)
This accessory allows operation of the unit when the condensing outdoor air temperature is below 10° C.

General information
This accessory controls condensing pressure in the winter cycle by varying air flow through the outdoor coils. This flow variation keeps condensing pressure constant when outdoor temperatures are low.

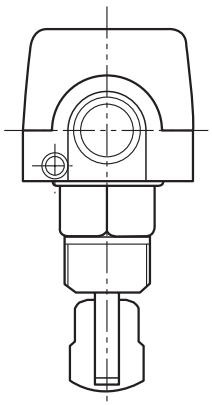
Operation
By means of the pressure detected through the analogical pressure switches installed in the cooling circuit, and carrying out the appropriate calculations as programmed, this control generates an analogical signal that opens the dampers to maintain the condensing pressure previously programmed as the set point.



Anti-vibratory supports
Whenever a maximum reduction of vibration and noise generated by the unit is required, a set of steel spring anti-vibratory supports can be used. These should be installed between the supporting frame of the unit and the base or floor where same is to be located. This base should be solid and sized in accordance with the weight to be supported. 12MA bolts are use to secure the supports to the base of the frame. This anti-vibratory support accessory for YLCC-42/62 includes 4 springs, whereas for YLCC-82/102/122/152 it includes 6. These spring supports should be distributed and secured by means of the corresponding holes drilled in the chiller base, the location of which is detailed in General Dimensions.

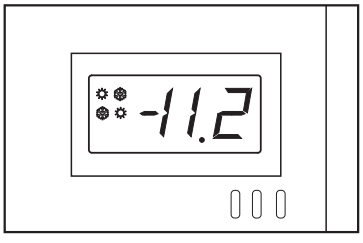


Flow switch (optional accessory)
Flow switch
Switch with a 1" MPT thread, adequate for a Design Operating Pressure of 10 bar hand so as to protect the equipment against water flow drops. This switch, or an equivalent, is required for the site installation of each unit (obligatory).



Remote control (accessory)
For access and control by means of the buttons and LEDs available. Allows selecting the cool, heat and OFF functions, and the red LED indicates any failure.
Can be installed at a maximum distance of 50 m. The remote terminal should be connected to the unit with a 7 x 0,35 mm^2 cable.

Remote terminal
For total access and control of the system by means of the display, buttons and LEDs. Allows selecting cool, heat and off functions. Can also modify operating parameters and monitor the system. Can be installed at a distance of 150 m.



Physical data and electrical characteristics

Cooling only

Model			YLCC 42/42V	YLCC 62/62V	YLCC 82/82V	YLCC 102/102V	YLCC 122/122V	YLCC 152/152V
Cooling capacity		kW	40.2	64	72.5	96.1	116	145
Compressor	Amount		2	2	2	2	2	2
	Type		Scroll	Scroll	Scroll	Scroll	Tandem-Scroll	Tandem-Scroll
	Nominal power (a)	kW	8.3 (x2)	11.7 (x2)	13.7 (x2)	19.1 (x2)	27.6 (x2)	27,9 (x2)
	Power supply	V.ph.Hz	400.3.50					
	Compres. consump. in cool	A	16.2 (x2)	21.3 (x2)	26.3 (x2)	34 (x2)	47.6 (x2)	50,9
	Starting current	A	130	135	175	215	135	175
	Oil charge	l	3.25	3.3	6.6	8	6.6	6.6
	Oil type		Polyolester ISO 32					
Centrifugal fan	Amount		2	2	2	2	2	2
	Total nom. air flow	m^3/h	13 268	20 122	23 304	28 834	33 247	38 312
	Fan size	mm	12-12	15-15	15-15	18-18	18-18	18-18
	Power (a)	W	1 280 (x2)	2 407 (x2)	2 648 (x2)	3 549 (x2)	5 520 (x2)	6 360 (x2)
	Fan consumption	A	2.9 (x2)	5 (x2)	6.4 (x2)	6.9 (x2)	10.31 (x2)	11,5 (x2)
	Starting current	A	17	35	60	60	75	75
	Power supply	V.ph.Hz	400.3.50					
	Motor r.p.m.		1 420	1 430	1 420	1 420	1 425	1 425
	Available pressure (b)	Pa	50	50	50	50	50	50
Outdoor coil	Amount		2	2	2	2	2	2
	Pipes depth x height		4 x 42	5 x 42	4 x 48	4 x 48	4 x 48	5 x 48
	Fins per inch		14	14	16	16	16	16
	Front surface	m^2	1.02 (x2)	1.02 (x2)	1.56 (x2)	1.56 (x2)	1.77 (x2)	1.77 (x2)
	Piping diameter		3/8"					
Indoor exchanger	Type		Coaxial					
	Max. operating pressure on water side	bar	10	10	10	10	10	10
Nominal water flow		l/h	6 760	11 020	12 285	16 424	19 404	22 948
Water connections female G.			2"	2"	$2^1/_2$"	$2^1/_2$"	3"	3"
Water filter			2"	2"	$2^1/_2$"	$2^1/_2$"	3"	3"
Refrigerant charge R-407C		kg	7.3 (x2)	7.8 (x2)	11.2 (x2)	11.4 (x2)	12 (x2)	16 (x2)
Sound power level		dB(A)	79	81	82	84	86	90
Sound power level at 5 m		dB(A)	57	59	60	62	64	70
Sound power level at 10 m		dB(A)	51	53	54	56	58	62
Dimensions with packing	Height	mm	1 770	1 770	1 994	1 994	1 994	1 994
	Width	mm	2 340	2 340	2 991	2 991	3 300	3 300
	Depth	mm	883	1 029	1 150	1 150	1 400	1 400
IP			44	44	44	44	44	44
Approximate weight	Nett	kg	695	816	962	1 133	1 389	1 522
	Gross	kg	712	834	981	1 153	1 411	1 544

a) Consumption under nominal conditions.
b) Pressure under nominal conditions. See page 10 for other air flows.

Physical data and electrical characteristics

Heat pump units

Model			YLCC-H 42/42V	YLCC-H 62/62V	YLCC-H 82/82V	YLCC-H 102/102V	YLCC-H 122/122V	YLCC-H 152/152V
Cooling capacity		kW	42.2	59.5	72.5	94.9	116	145
Heating capacity		kW	45.2	64.2	82.7	95.4	120	145
Compressor	Amount		2	2	2	2	2	2
	Type		Scroll	Scroll	Scroll	Scroll	Tandem scroll	Tandem scroll
	Nominal power (cooling) (a)	kW	8.2 (x2)	12.3 (x2)	13.9 (x2)	19.5 (x2)	24 (x2)	29,7 (x2)
	Nominal power (heating) (a)	kW	8.7 (x2)	12.6 (x2)	14.3 (x2)	19.9 (x2)	25,3 (x2)	28,4 (x2)
	Power supply	V.ph.Hz	400.3.50					
	Comp. consump. in cooling	A	15.9 (x2)	22 (x2)	26.5 (x2)	34.4 (x2)	41,5 (x2)	54 (x2)
	Comp. consump. in heating	A	16.7 (x2)	22.8 (x2)	27.1 (x2)	35 (x2)	43,5 (x2)	52,2 (x2)
	Starting current	A	130	135	175	215	135	175
	Oil charge	l	3.25	3.3	6.6	8	6.6	6.6
	Oil type		Polyolester ISO32					
Centrifugal fan	Amount		2	2	2	2	2	2
	Total nom. air flow	m^3/h	13 268	20 122	23 304	28 834	37 403	37 403
	Fan size	mm	12-12	15-15	15-15	18-18	18-18	18-18
	Power (a)	W	1 420 (x2)	2 507 (x2)	2 824 (x2)	3 988 (x2)	5 505 (x2)	5 856 (x2)
	Fan consumption	A	3.1 (x2)	4.9 (x2)	6.6 (x2)	7.4 (x2)	10,4 (x2)	10,8 (x2)
	Starting current	A	17	35	60	60	75	75
	Power supply	V.ph.Hz	400.3.50					
	Motor r.p.m.		1 420	1 430	1 420	1 420	1 425	1 425
	Available pressure (b)	Pa	50	50	50	50	50	50
Outdoor coil	Amount		2	2	2	2	2	2
	Pipes depth x height		4 x 42	5 x 42	4 x 48	4 x 48	5 x 48	5 x 48
	Fins per inch		14	14	16	16	16	16
	Front surface	m^2	1.02 (x2)	1.02 (x2)	1.56 (x2)	1.56 (x2)	1.77 (x2)	1.77 (x2)
	Piper diameter		3/8"					
Indoor exchanger	Type		Coaxial					
	Max. operating pressure on water side	bar	10	10	10	10	10	10
Nominal cold/hot water flow		l/h	7107 / 6829	10041 / 10045	12211 / 13629	16165 / 16103	17 977/18 889	22 085/20 801
Water connections female G.			2"	2"	$2^1/_2$"	$2^1/_2$"	3"	3"
Water filter			2"	2"	$2^1/_2$"	$2^1/_2$"	3"	3"
Refrigerant charge R-407C		kg	7.5 (x2)	8.6 (x2)	12.1 (x2)	12.1 (x2)	14,5 (x2)	20 (x2)
Sound power level		dB(A)	79	81	82	84	86	90
Sound power level at 5 m		dB(A)	57	59	60	62	64	70
Sound power level at 10 m		dB(A)	51	53	54	56	58	62
Dimensions with packing	Height	mm	1 770	1 770	1 994	1 994	1 994	1 994
	Width	mm	2 340	2 340	2 991	2 991	3 300	3 300
	Depth	mm	883	1 029	1 150	1 150	1 400	1 400
IP			44	44	44	44	44	44
Approximate weight	Nett	kg	715	857	987	1 146	1 514	1 568
	Gross	kg	732	875	1 006	1 166	1 536	1 590

a) Consumption under nominal conditions.
b) Pressure under nominal conditions. See page 10 for other air flows.

Limits of use

Model	Voltage limits		DB air intake temperature to coil				Water outlet temperature				Temperature differential between water discharge and intake	
	Nominal at 400 V		Operating cycle				Operating cycle					
			Minimum °C		Maximum °C		Minimum °C		Maximum °C		Minimum °C	Maximum °C
	Minimum	Maximum	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat		
YLCC	342	436	10	-	46	-	5*	-	15	-	3	7
YLCC-H	342	436	10	-10	46	20	5*	30	15	50	3	7

* At water temperatures below the nominal limits, it is always necessary to use glycol-type antifreeze mixtures.

Limits of use, YLCC (cooling only unit)

Water discharge temperature: +6° C to +15° C.
Brine discharge temperature: -5° C to +6° C.
Temperature difference in heat exchanger: 3 to 7° C.
Maximum air intake temperature: +46° C.
Minimum ambient temperature: +10° C (standard), -18° C low ambient temperature kit (optional).

Limits of use, YLCC-H (heat pump unit)

Cool mode

Water discharge temperature: +6° C to +15° C.
Brine discharge temperature: -5° C to +6° C.
Temperature difference in heat exchanger: 3 to 7° C.
Maximum air intake temperature: +46° C.
Minimum ambient temperature: +10° C (standard), -18° C low ambient temperature kit (optional).

Heat mode

Water discharge temperature: +30° C to +50° C.
Ambient temperature: -10° C to +20° C.
Temperature difference in heat exchanger: 3 to 7° C.
Minimum air intake temperature: 0° C with maximum discharge water temperature of 50° C.
Minimum air intake temperature: -5° C with maximum discharge water temperature of 45° C.

Test conditions

Voltage 400 V	Outdoor air temperature °C		Water intake temperature °C	Water discharge temperature °C
	DB	WB		
Summer	35	24	12	7
Winter	7	6	40	45

Nominal flows, cool only

The cooling capacities on the corresponding tables are valid for the following nominal flows:

Model	Nominal water flow l/h	Pressure drop Kpa	Nominal air flow m^3/h	Available pressure fan Pa
YLCC-42	6 760	16.1	13 268	50
YLCC-62	11 020	43.5	20 122	50
YLCC-82	12 285	57	23 304	50
YLCC-102	16 424	94	28 834	50
YLCC-122	19 404	20.4	33 247	50
YLCC-152	22 948	45,6	38 312	50

Nominal flows, heat pump

The capacities on the corresponding tables are valid for the following nominal flows:

Model	Nominal water flow l/h		Pressure drop Kpa	Nominal air flow m^3/h	Available pressure fan Pa
	Cool	Heat			
YLCC-H-42	7 107	6 829	16.4	13 268	50
YLCC-H-62	10 041	10 045	36.6	20 122	50
YLCC-H-82	12 211	13 629	56.6	23 304	50
YLCC-H-102	16 165	16 103	91	28 834	50
YLCC-H-122	17 977	18 889	17,5	37 403	50
YLCC-H-152	22 085	20 801	42,3	37 403	50

Cooling capacities

Model	Leaving water temp. °C	DB air temperature at condenser intake °C									
		25		30		35		40		45	
		Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.
		W	kW	W	kW	W	kW	W	kW	W	kW
YLCC-42	5	44 260	16.20	40 843	16.74	37 868	17.11	34 250	17.65	31 115	17.56
	6	45 788	16.56	42 290	17.11	38 994	17.65	35 738	18.02	32 361	18.56
	7	47 315	16.74	43 818	17.47	40 200	18.20	36 984	18.56	33 728	19.11
	8	48 923	17.11	45 386	17.84	41 929	18.56	38 431	18.93	34 974	19.47
	9	50 491	17.47	46 954	18.20	43 416	18.93	39 878	19.47	36 381	20.02
	10	52 220	17.84	48 562	18.56	44 944	19.29	41 205	19.84	37 627	20.57
	11	53 908	18.20	50 129	18.93	46 471	19.66	42 773	20.38	38 914	20.93
	12	55 556	18.56	51 778	19.29	48 039	20.02	44 260	20.75	41 366	21.48
YLCC-62	5	70 464	24.52	65 024	25.35	60 288	25.90	54 528	26.72	49 536	26.59
	6	72 896	25.07	67 328	25.90	62 080	26.72	56 896	27.27	51 520	28.10
	7	75 328	25.35	69 760	26.45	64 000	27.55	58 880	28.10	53 696	28.93
	8	77 888	25.90	72 256	27.00	66 752	28.10	61 184	28.65	55 680	29.48
	9	80 384	26.45	74 752	27.55	69 120	28.65	63 488	29.48	57 920	30.31
	10	83 136	27.00	77 312	28.10	71 552	29.20	65 600	30.03	59 904	31.13
	11	85 824	27.55	79 808	28.65	73 984	29.75	68 096	30.86	61 952	31.68
	12	88 448	28.10	82 432	29.20	76 480	30.31	70 464	31.41	65 856	32.51
YLCC-82	5	79 823	28.62	73 660	29.59	68 295	30.23	61 770	31.20	56 115	31.03
	6	82 578	29.27	76 270	30.23	70 325	31.20	64 453	31.84	58 363	32.80
	7	85 333	29.59	79 025	30.87	72 500	32.16	66 700	32.80	60 828	33.77
	8	88 233	30.23	81 853	31.52	75 618	32.80	69 310	33.45	63 075	34.41
	9	91 060	30.87	84 680	32.16	78 300	33.45	71 920	34.41	65 613	35.38
	10	94 178	31.52	87 580	32.80	81 055	34.09	74 313	35.05	67 860	36.34
	11	97 223	32.16	90 408	33.45	83 810	34.73	77 140	36.02	70 180	36.98
	12	100 195	32.80	93 380	34.09	86 638	35.38	79 823	36.66	74 603	37.95

Note: The cooling and heating capacities on the tables are in accordance with a liquid temperature increase, in the indoor exchanger, of 5° C (Δt = 5° C). DB = Dry bulb. RH = Relative humidity.

Cooling capacities

Model	Leaving water temp. °C	DB air temperature at condenser intake °C									
		25		30		35		40		45	
		Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.
		W	kW	W	kW	W	kW	W	kW	W	kW
YLCC-102	5	105 806	39.86	97 638	41.21	90 526	42.10	81 877	43.45	74 381	43.22
	6	109 458	40.76	101 097	42.10	93 217	43.45	85 433	44.34	77 361	45.69
	7	113 110	41.21	104 749	43.00	96 100	44.79	88 412	45.69	80 628	47.03
	8	116 954	42.10	108 497	43.89	100 232	45.69	91 872	46.58	83 607	47.93
	9	120 702	43.00	112 245	44.79	103 788	46.58	95 331	47.93	86 971	49.27
	10	124 834	43.89	116 089	45.69	107 440	47.48	98 503	48.82	89 950	50.61
	11	128 870	44.79	119 837	46.58	111 092	48.37	102 250	50.16	93 025	51.51
	12	132 810	45.69	123 777	47.48	114 840	49.27	105 806	51.06	98 887	52.85
YLCC-122	5	127 716	57.21	117 856	59.14	109 272	60.42	98 832	62.35	89 784	62.03
	6	132 124	58.49	122 032	60.42	112 520	62.35	103 124	63.64	93 380	65.57
	7	136 532	59.14	126 440	61.71	116 000	64.28	106 720	65.57	97 324	67.49
	8	141 172	60.42	130 964	62.99	120 988	65.57	110 896	66.85	100 920	68.78
	9	145 696	61.71	135 488	64.28	125 280	66.85	115 072	68.78	104 980	70.71
	10	150 684	62.99	140 128	65.57	129 688	68.14	118 900	70.07	108 576	72.64
	11	155 556	64.28	144 652	66.85	134 096	69.42	123 424	71.99	112 288	73.92
	12	160 312	65.57	149 408	68.14	138 620	70.71	127 716	73.28	119 364	75.85
YLCC-152	5	156 893	60.14	144 780	62.16	134 235	63.52	121 410	65.54	110 295	65.21
	6	162 308	61.49	149 910	63.52	138 225	65.54	126 683	66.89	114 713	68.92
	7	167 723	62. 16	155 325	64.87	142 500	67.57	131 100	68.92	119 558	70.95
	8	173 423	63.52	160 883	66.22	148 628	68.92	136 230	70.27	123 975	72.30
	9	178 980	64.87	166 440	67.57	153 900	70.27	141 360	72.30	128 963	74.33
	10	185 108	66.22	172 140	68.92	159 315	71.62	146 063	73.65	133 380	76.35
	11	191 093	67.57	177 698	70.27	164 730	72.98	151 620	75.68	137 940	77.71
	12	196 935	68.92	183 540	71.62	170 288	74.33	156 893	77.03	146 633	79.73

Note: The cooling and heating capacities on the tables are in accordance with a liquid temperature increase, in the indoor exchanger, of 5° C (Δt = 5° C). DB = Dry bulb. RH = Relative humidity.

Cooling capacities

Model	Leaving water temp. °C	DB air temperature at condenser intake °C									
		25		30		35		40		45	
		Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.
		W	kW	W	kW	W	kW	W	kW	W	kW
YLCC-H-42	5	46 462	15.76	42 875	16.29	39 752	16.65	35 954	17.18	32 663	17.09
	6	48 066	16.12	44 394	16.65	40 934	17.18	37 516	17.53	33 971	18.06
	7	49 669	16.29	45 998	17.00	42 200	17.71	38 824	18.06	35 406	18.60
	8	51 357	16.65	47 644	17.36	44 015	18.06	40 343	18.42	36 714	18.95
	9	53 003	17.00	49 290	17.71	45 576	18.42	41 862	18.95	38 191	19.48
	10	54 818	17.36	50 978	18.06	47 180	18.77	43 255	19.30	39 499	20.01
	11	56 590	17.71	52 623	18.42	48 783	19.13	44 901	19.84	40 850	20.37
	12	58 320	18.06	54 354	18.77	50 429	19.48	46 462	20.19	43 424	20.90
YLCC-H-62	5	65 510	25.19	60 452	26.04	56 049	26.60	50 694	27.45	46 053	27.31
	6	67 771	25.75	62 594	26.60	57 715	27.45	52 896	28.02	47 898	28.87
	7	70 032	26.04	64 855	27.17	59 500	28.30	54 740	28.87	49 921	29.72
	8	72 412	26.60	67 176	27.73	62 059	28.87	56 882	29.43	51 765	30.28
	9	74 732	27.17	69 496	28.30	64 260	29.43	59 024	30.28	53 848	31.13
	10	77 291	27.73	71 876	28.87	66 521	30.00	60 988	30.85	55 692	31.98
	11	79 790	28.30	74 197	29.43	68 782	30.56	63 308	31.70	57 596	32.55
	12	82 229	28.87	76 636	30.00	71 103	31.13	65 510	32.26	61 226	33.39
YLCC-H-82	5	79 823	28.95	73 660	29.93	68 295	30.58	61 770	31.55	56 115	31.39
	6	82 578	29.60	76 270	30.58	70 325	31.55	64 453	32.20	58 363	33.18
	7	85 333	29.93	79 025	31.23	72 500	32.53	66 700	33.18	60 828	34.16
	8	88 233	30.58	81 853	31.88	75 618	33.18	69 310	33.83	63 075	34.81
	9	91 060	31.23	84 680	32.53	78 300	33.83	71 920	34.81	65 613	35.78
	10	94 178	31.88	87 580	33.18	81 055	34.48	74 313	35.46	67 860	36.76
	11	97 223	32.53	90 408	33.83	83 810	35.13	77 140	36.43	70 180	37.41
	12	100 195	33.18	93 380	34.48	86 638	35.78	79 823	37.08	74 603	38.39

Note: The cooling and heating capacities on the tables are in accordance with a liquid temperature increase, in the indoor exchanger, of 5° C (Δt = 5° C). DB = Dry bulb. RH = Relative humidity.

Cooling capacities

Model	Leaving water temp. °C	DB air temperature at condenser intake °C									
		25		30		35		40		45	
		Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.	Capacity	Consump.
		W	kW	W	kW	W	kW	W	kW	W	kW
YLCC-H 102	5	104 485	40.34	96 418	41.70	89 396	42.61	80 855	43.97	73 453	43.74
	6	108 091	41.25	99 835	42.61	92 053	43.97	84 366	44.88	76 395	46.24
	7	111 697	41.70	103 441	43.52	94 900	45.33	87 308	46.24	79 621	47.60
	8	115 493	42.61	107 142	44.42	98 981	46.24	90 724	47.14	82 563	48.50
	9	119 194	43.52	110 843	45.33	102 492	47.14	94 141	48.50	85 885	49.86
	10	123 275	44.42	114 639	46.24	106 098	48.05	97 273	49.41	88 826	51.22
	11	127 261	45.33	118 340	47.14	109 704	48.96	100 974	50.77	91 863	52.13
	12	131 152	46.24	122 231	48.05	113 406	49.86	104 485	51.68	97 652	53.49
YLCC-H 122	5	123 312	50.94	113 792	52.66	105 504	53.81	95 424	55.52	86 688	55.24
	6	127 568	52.09	117 824	53.81	108 640	55.52	99 568	56.67	90 160	58.38
	7	131 824	52.66	122 080	54.95	112 000	57.24	103 040	58.38	93 968	60.10
	8	136 304	53.81	126 448	56.10	116 816	58.38	107 072	59.53	97 440	61.25
	9	140 672	54.95	130 816	57.24	120 960	59.53	111 104	61.25	101 360	62.96
	10	145 488	56.10	135 296	58.38	125 216	60.67	114 800	62.39	104 832	64.68
	11	150 192	57.24	139 664	59.53	129 472	61.82	119 168	64.11	108 416	65.83
	12	154 784	58.38	144 256	60.67	133 840	62.96	123 312	65.25	115 248	67.54
YLCC-H 152	5	155 792	61.46	143 764	63.54	133 293	64.92	120 558	66.99	109 521	66.64
	6	161 169	62.84	148 858	64.92	137 255	66.99	125 794	68.37	113 908	70.44
	7	166 546	63.54	154 235	66.30	141 500	69.06	130 180	70.44	118 719	72.51
	8	172 206	64.92	159 754	67.68	147 585	70.44	135 274	71.82	123 105	73.89
	9	177 724	66.30	165 272	69.06	152 820	71.82	140 368	73.89	128 058	75.97
	10	183 809	67.68	170 932	70.44	158 197	73.20	145 038	75.28	132 444	78.04
	11	189 752	69.06	176 451	71.82	163 574	74.58	150 556	77.35	136 972	79.42
	12	195 553	70.44	182 252	73.20	169 093	75.97	155 792	78.73	145 604	81.49

Note: The cooling and heating capacities on the tables are in accordance with a liquid temperature increase, in the indoor exchanger, of 5° C (Δt = 5° C). DB = Dry bulb. RH = Relative humidity.

Heating capacities

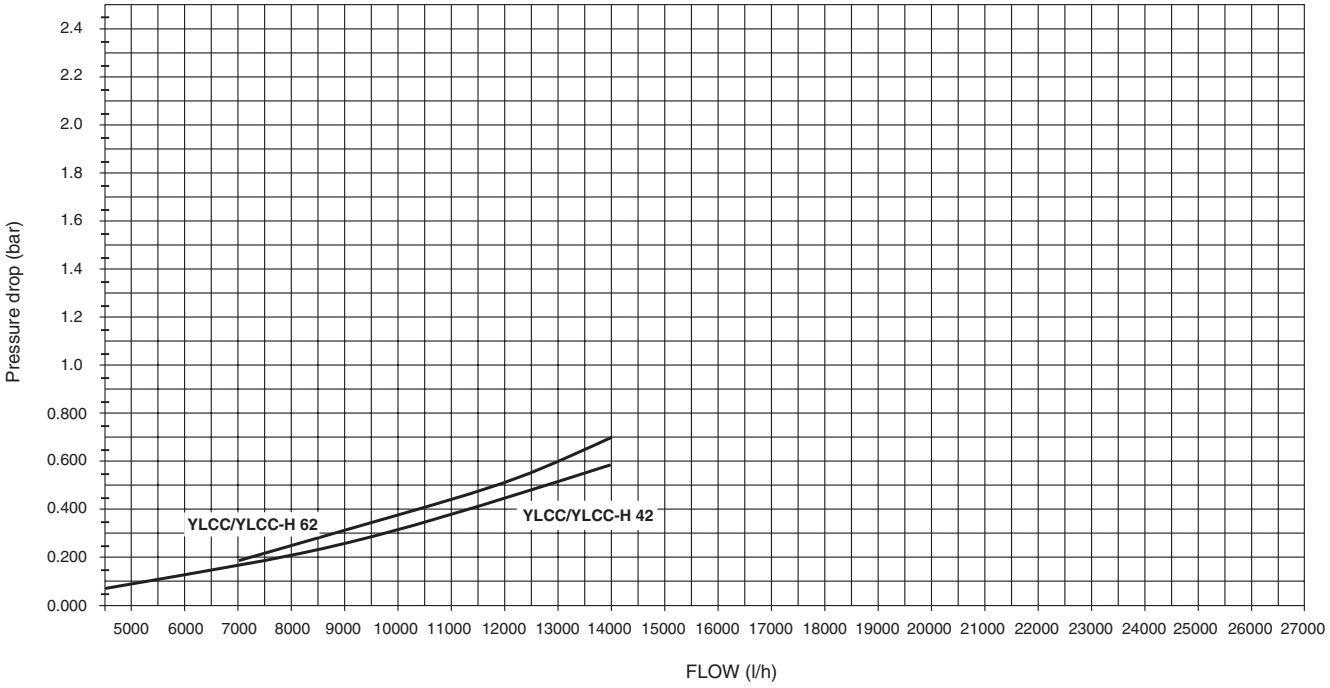
Model	DB outdoor ambient temperature °C (80% RH)	LWT °C					
		40		45		50	
		W	Comp. kW	W	Comp. kW	W	Comp. kW
YLCC-H-42	-10	28 476	14.55	26 668	15.13	24 860	15.71
	-5	33 900	15.91	31 640	16.68	29 832	17.27
	0	38 420	16.88	36 612	17.46	34 352	18.43
	5	45 652	18.04	42 488	19.01	41 132	19.98
	7	47 912	18.43	45 200	19.4	42 940	20.37
	10	51 076	19.01	48 816	19.98	46 556	21.15
	15	59 664	20.18	57 856	21.34	55 144	22.89
	20	73 676	21.15	68 252	22.7	64 636	23.86
YLCC-H-62	-10	40 446	21.83	37 878	22.7	35 310	23.57
	-5	48 150	23.86	44 940	25.03	42 372	25.9
	0	54 570	25.32	52 002	26.19	48 792	27.65
	5	64 842	27.06	60 348	28.52	58 422	29.97
	7	68 052	27.65	64 200	29.1	60 990	30.56
	10	72 546	28.52	69 336	29.97	66 126	31.72
	15	84 744	30.26	82 176	32.01	78 324	34.34
	20	104 646	31.72	96 942	34.05	91 806	35.79
YLCC-H-82	-10	52 101	25.17	48 793	26.18	45 485	27.18
	-5	62 025	27.52	57 890	28.86	54 582	29.87
	0	70 295	29.2	66 987	30.2	62 852	31.88
	5	83 527	31.21	77 738	32.89	75 257	34.57
	7	87 662	31.88	82 700	33.56	78 565	35.24
	10	93 451	32.89	89 316	34.57	85 181	36.58
	15	109 164	34.9	105 856	36.92	100 894	39.6
	20	134 801	36.58	124 877	39.27	118 261	41.28

Heating capacities

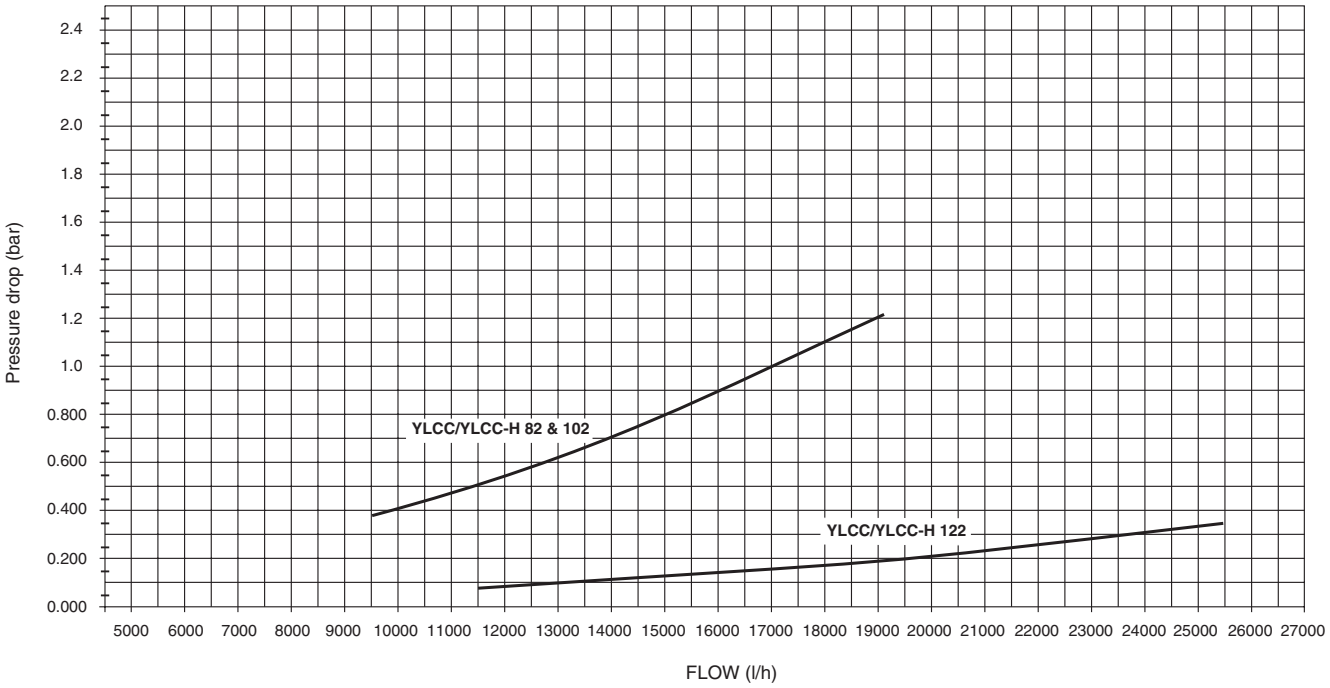
Model	DB outdoor ambient temperature °C (80% RH)	LWT °C					
		40		45		50	
		W	Comp. kW	W	Comp. kW	W	Comp. kW
YLCC-H-102	-10	60 102	35.69	56 286	37.11	52 470	38.54
	-5	71 550	39.02	66 780	40.92	62 964	42.35
	0	81 090	41.39	77 274	42.82	72 504	45.2
	5	96 354	44.25	89 676	46.63	86 814	49.01
	7	101 124	45.2	95 400	47.58	90 630	49.96
	10	107 802	46.63	103 032	49.01	98 262	51.86
	15	125 928	49.48	122 112	52.34	116 388	56.14
	20	155 502	51.86	144 054	55.67	136 422	58.52
YLCC-H-122	-10	73 395	44.84	68 735	46.64	64 075	48.43
	-5	87 375	49.03	81 550	51.42	76 890	53.21
	0	99 025	52.02	94 365	53.81	88 540	56.8
	5	117 665	55.6	109 510	58.59	106 015	61.58
	7	123 490	56.8	116 500	59.79	110 675	62.78
	10	131 645	58.59	125 820	61.58	119 995	65.17
	15	153 780	62.18	149 120	65.77	142 130	70.55
	20	189 895	65.17	175 915	69.95	166 595	73.54
YLCC-H-152	-10	90 090	49.25	84 370	51.22	78 650	53.19
	-5	107 250	53.85	100 100	56.48	94 380	58.45
	0	121 550	57.13	115 830	59.1	108 680	62.39
	5	144 430	61.07	134 420	64.36	130 130	67.64
	7	151 580	62.39	143 000	65.67	135 850	68.95
	10	161 590	64.36	154 440	67.64	147 290	71.58
	15	188 760	68.3	183 040	72.24	174 460	77.49
	20	233 090	71.58	215 930	76.83	204 490	80.77

Hydraulic circuit flow/pressure characteristics of YLCC and YLCC-H

YLCC/YLCC-H 42
YLCC/YLCC-H 62

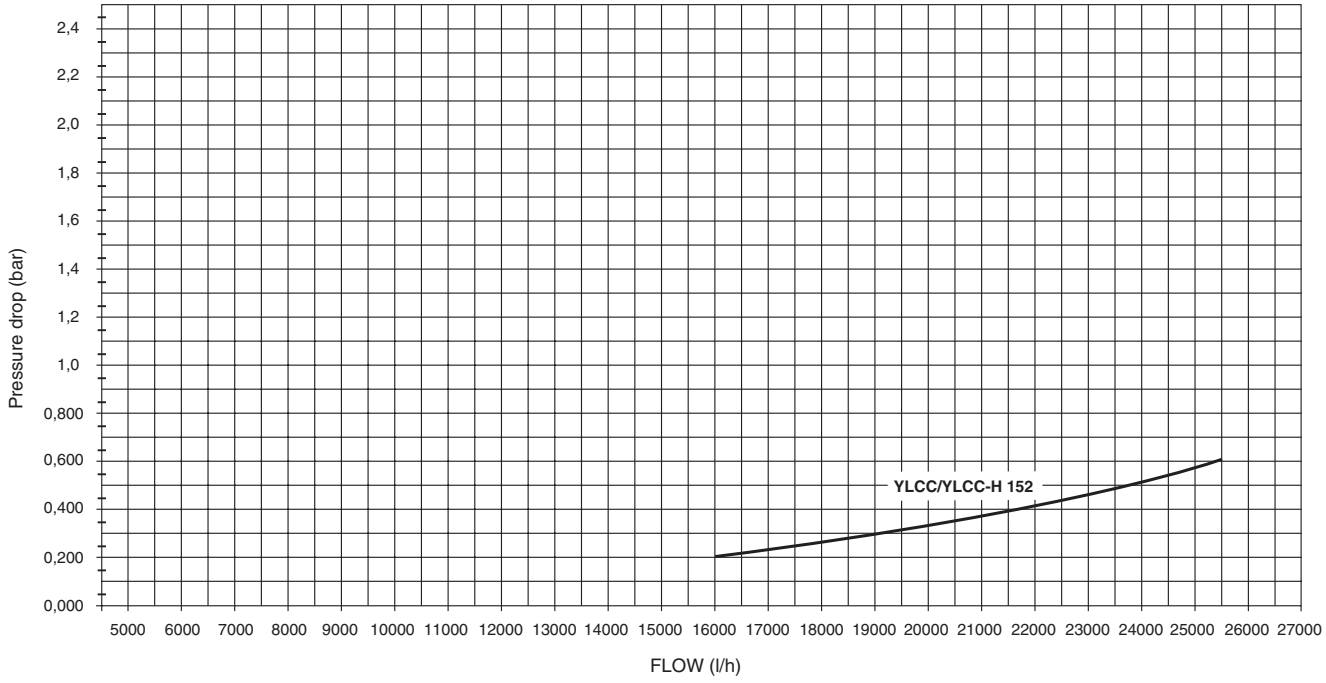


YLCC/YLCC-H 82 & 102
YLCC/YLCC-H 122



Hydraulic circuit flow/pressure characteristics of YLCC and YLCC-H

YLCC/YLCC-H 152



Fan performances

Model	Standard unit				
	Available static pressure		Air flow		Absorbed power
	mm WG	Pa	m³/h	m³/s	W
YLCC YLCC-H 42/42V	0	0	14 452	4.01	3 100
	2	20	14 006	3.89	2 990
	4	39	13 544	3.76	2 880
	5.1	50	13 268	3.68	2 835
	6	59	13 054	3.63	2 790
	8	78	12 562	3.49	2 660
	10	98	12 078	3.35	2 550
	12	118	11 550	3.21	2 440
	14	137	11 050	3.07	2 325
	16	157	10 580	2.94	2 210
	18	176	10 090	2.80	2 100
	20	196	9 600	2.66	1 990
YLCC YLCC-H 62/62V	0	0	21 406	5.94	5 530
	2	20	20 937	5.81	5 370
	4	39	20 434	5.67	5 225
	5.1	50	20 122	5.59	5 140
	6	59	19 874	5.52	5 055
	8	78	19 297	5.36	4 860
	10	98	18 702	5.19	4 690
	12	118	18 163	5.04	4 580
	14	137	17 450	4.85	4 460
	16	157	16 880	4.68	4 340
	18	176	16 250	4.51	4 215
	20	196	15 600	4.33	4 090
YLCC YLCC-H 82/82V	0	0	24 828	6.89	6 610
	2	20	24 226	6.73	6 409
	4	39	23 646	6.57	6 219
	5.1	50	23 304	6.47	6 110
	6	59	23 032	6.39	6 040
	8	78	22 405	6.22	5 820
	10	98	21 761	6.04	5 625
	12	118	21 090	5.86	5 515
	14	137	20 410	5.67	5 395
	16	157	19 825	5.51	5 270
	18	176	19 190	5.33	5 145
	20	196	18 480	5.13	5 035

Model	Standard unit				
	Available static pressure		Air flow		Absorbed power
	mm WG	Pa	m³/h	m³/s	W
YLCC YLCC-H 102/102V	0	0	30 694	8.53	8 990
	2	20	29 964	8.32	8 720
	4	39	29 231	8.12	8 480
	5.1	50	28 834	8.01	8 300
	6	59	28 500	7.92	8 100
	8	78	27 794	7.72	7 840
	10	98	27 121	7.53	7 620
	12	118	26 360	7.32	7 410
	14	137	25 820	7.17	7 200
	16	157	25 160	6.98	6 980
	18	176	24 410	6.78	6 765
	20	196	23 755	6.59	6 550
YLCC 122/122V	0	0	34 951	9.71	10 550
	2	20	34 282	9.51	10 317
	4	39	33 613	9.33	10 084
	5.1	50	33 247	9.23	9 955
	6	59	32 618	9.06	9 799
	8	78	32 287	8.97	9 455
	10	98	31 586	8.77	9 172
	12	118	30 885	8.58	8 890
	14	137	30 188	8.38	8 607
	16	157	29 491	8.19	8 325
	18	176	28 785	7.99	8 042
	20	196	28 080	7.81	7 760
YLCC-H 122/122V 152/152V	4	39	37 751	10.48	13 575
	5.1	50	37 403	10.29	13 310
	8	78	36 427	10.12	12 790
	12	118	35 108	9.75	12 090
	16	157	33 707	9.36	11 415
	20	196	32 256	8.96	10 672
	24	235	30 683	8.52	9 985
YLCC 152/152V	4	39	38 700	10.75	14 169
	5.1	50	38 312	10.64	13 990
	8	78	37 324	10.37	13 470
	12	118	35 896	9.97	12 747
	16	157	34 463	9.57	12 062
	20	196	32 968	9.16	11 320
	24	235	31 282	8.69	10 570

Correcting factors

Foul factors

Evaporator		
Foul factor m² °C/kW	Capacity factor	Absorbed power factor comp.
0.044	1.000	1.000
0.088	0.987	0.995
0.176	0.964	0.985
0.352	0.926	0.962

Altitude factors

Altitude (m)	Capacity factor	Absorbed power factor comp.
0	1.000	1.000
600	0.987	1.010
1 200	0.973	1.020
1 800	0.958	1.029
2 400	0.943	1.038

Correcting factors for real temperature of coil air intake at flows other than nominal

% Flow	70	80	90	100	110	120	130
Correction in °C on real temperature of coil intake temperature	5	3	1.5	0	-1	-2	-2.5

Factors with water and glycol

Glycol can be used for antifreeze protection, or as brine for operation at low temperatures. We recommend the use of water and glycol when the discharge water temperature is below +6° C. The “Solution with glycol/freezing point” table gives the freezing point of water with glycol, and the “Recommended glycol concentration” table shows the glycol concentration needed, depending upon application.
Glycol contains anticorrosive and antifoam components that favour circuit protection.

Solution with glycol/freezing point

% Glycol weight per weight	Freezing point °C
0	0
10	-4
20	-10
30	-17
35	-20
40	-25
50	-37

A mixture of glycol and water has a freezing point below that of pure water. Depending upon the concentration of glycol in the solution, an even lower freezing point can be achieved and this protects the circuit when the unit is off and ambient temperature is low (below 0° C). This table indicates freezing point in accordance with glycol concentration. This concentration appears in % per weight.

Recommended glycol concentration

LWT °C	Glycol % per weight
6°C > LWT > 0°C	20
0°C > LWT > -5°C	30

The glycol concentration in the water should be checked regularly to ensure adequate protection of the chiller.

Correcting factors

Ethylene glycol percentage by weight (%)	LWT	Nominal capacity correcting factors		
		Air temperature at condenser intake (°C DB)		
		25	35	45
20	5	1.045	0.902	0.754
	4	1.004	0.866	0.726
	3	0.962	0.83	0.697
	2	0.921	0.794	0.669
	1	0.879	0.758	0.64
	0	0.838	0.722	0.612
30	-1	0.795	0.681	0.574
	-2	0.764	0.652	0.545
	-3	0.734	0.623	0.515
	-4	0.703	0.594	0.486
	-5	0.673	0.565	0.457

Water flow correcting factors for ethylene glycol solutions

Ethylene glycol percentage by weight (%)	Correcting factors	
	Water flow	Pressure drop
20	1.035	1.16
30	1.075	1.27

Installation instructions

General information

The YLCC water chillers and heat pumps are factory-charged and tested packaged units.

Inspection

Upon reception, inspect the goods and notify the carrier and the insurance company, in writing, of any possible damage during transportation.

Environmental protection

Packing

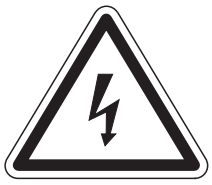
Packing is made of recyclable material. Its elimination should be carried out in accordance with local regulations on selective collection of residual material.

Elimination of the unit

Upon disassembly of the unit after a long service life, the components should be recuperated ecologically. The cooling circuit is full of refrigerant, which should be recuperated and returned to the gas manufacturer for recycling.
Oil will remain in the hermetic compressor and, therefore, must be returned with its circuit sealed.
The air conditioning unit will be deposited in an area determined by the local authorities, for its selective recuperation.

Warning signs

The following signs indicate the existence of potentially dangerous conditions for users or servicing personnel.
Whenever found on the unit itself, take the meaning of each one into account.



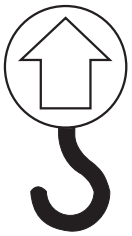
This symbol indicates an electrical danger or risk.

Attention: It is obligatory to read the instructions prior to any handling.

Attention: Fan in operation.

Attention: Do not touch hot surfaces.

Attention: The unit is equipped with remote control and can start automatically. Two minutes prior to having access to the interior, disconnect the power supply so as to avoid any contact with the fan turbine in motion.

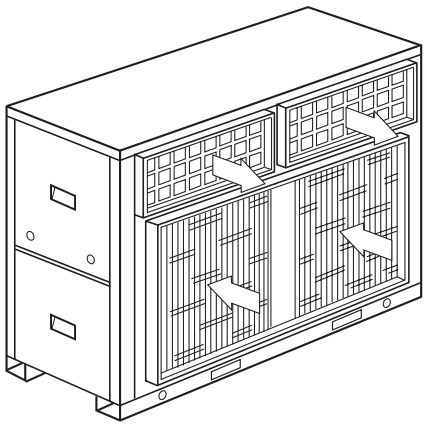


Attention: Lifting point.

Transportation

The units should always be transported in vertical position so as to avoid oil leaking out of the compressor. If, for any reason, this position need be changed sporadically, they will remain in that position a strictly necessary period of time only.
To move the units to their final location, the four rectangular openings in the bed frame can be used with a forklift truck, or the four cylindrical holes at the ends of the bed frame for elevation.

YLCC
YLCC-H



Clearances

When installing each unit, clearances should be left for:

1- Air intake and discharge.
2- Water, drain and power supply connections
3- Maintenance servicing.

Note: See minimum clearances indicated on the general dimensions diagrams.

Drainage

The unit has two connections for draining condensed water accumulated in the coil during operation in the winter cycle, or for fully emptying the unit. The outer diameter of these connections is 28 mm. At outdoor temperatures below 0° C, condensed water can freeze and obstruct the drain. It is advisable to take this into account and, when considered necessary, install a flexible electric heater. This heater can be connected by means of an ambient thermostat set to 3° C, for example. This thermostat activates the heater when the temperature is below the set point.

Locating and securing the unit

These units are designed to be placed on the floor indoors. With air discharge and return ducts, if necessary. Before opening the packing, make sure you have received the appropriate product by checking the specifications described on the outside of same.

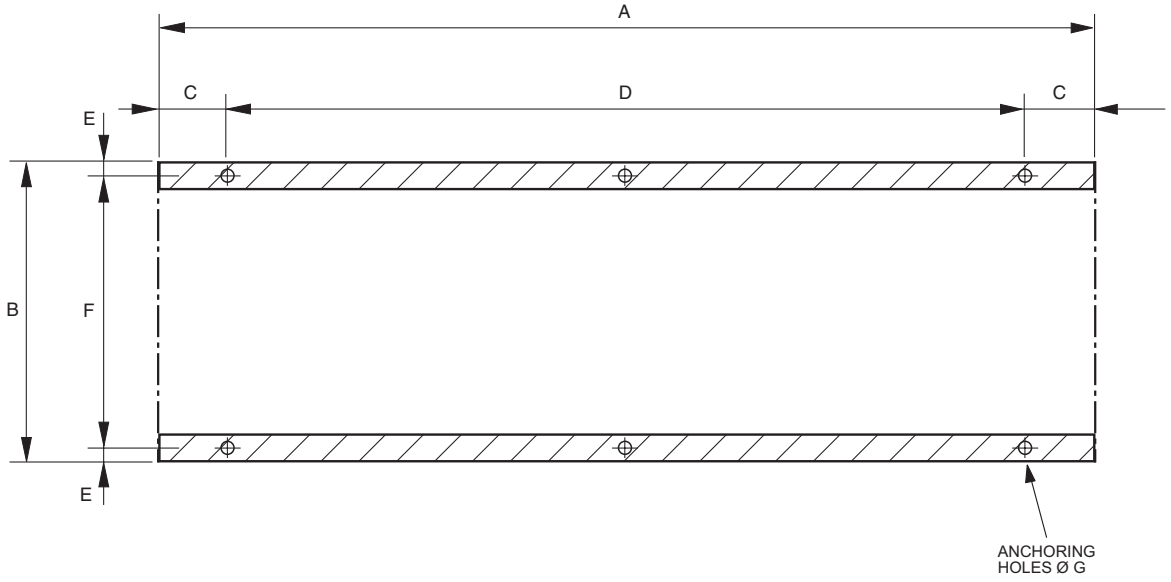
The unit should be placed on a perfectly horizontal plane, making sure the base can support the weight of the unit.

If vibration-free operation is required, the unit can be placed on a cork or similar anti-vibratory base, or fastened to the base with anti-vibratory plates or supports (optional accessory).

If the unit is to be placed on the floor, a concrete base should be prepared so as to distribute weight evenly.

The following illustration shows the spaces and fastening points that correspond to the location of each model.

Location dimensions



Model	A	B	C	D	E	F	Ø G
42	2 240	774	200	1 840	55	664	16.5 (4)
62	2 240	929	200	1 840	55	819	16.5 (4)
82	2 891	1 000	200	1 245.5 (x 2)	55	890	16.5 (6)
102	2 891	1 000	200	1 245.5 (x 2)	55	890	16.5 (6)
122	3 200	1 300	200	1 400 (x2)	55	1 190	16.5 (6)
152	3 200	1 300	200	1 400 (x2)	55	1 190	16.5 (6)

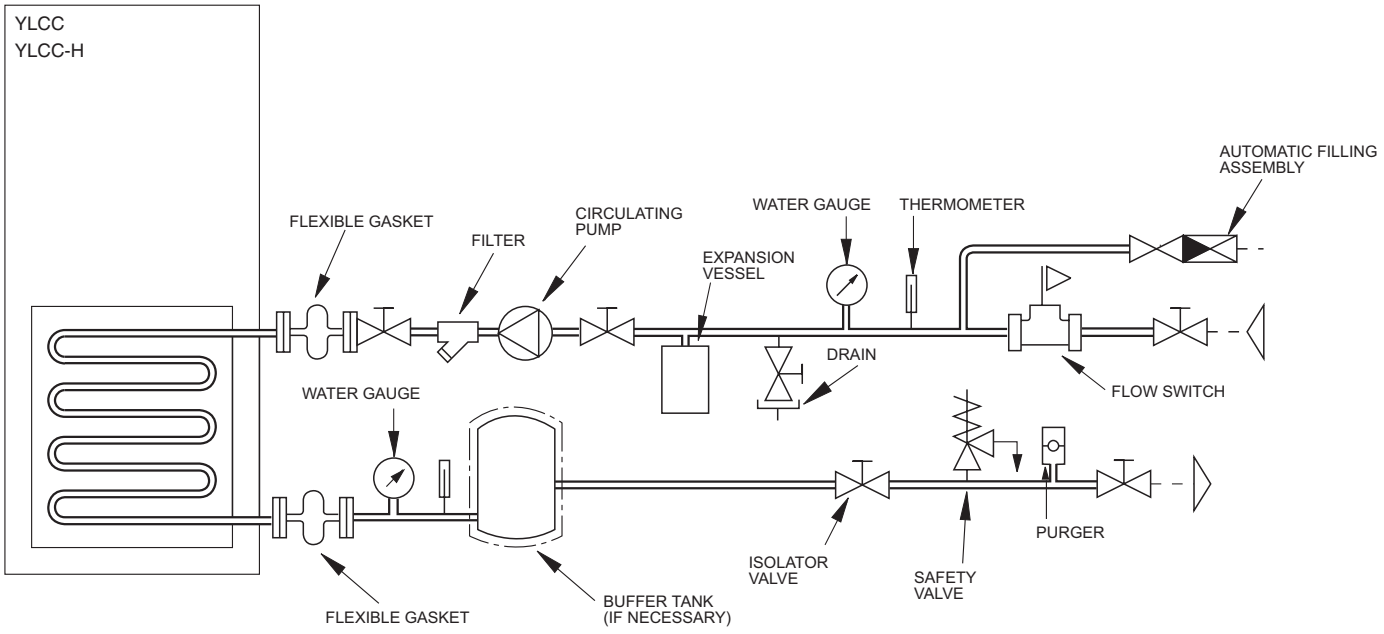
Hydraulic connections

The hydraulic connections of the water intake and outlet of the chiller should be carried out respecting the intake and outlet directions indicated at the front of the unit.
An iron (not galvanised) or copper tubing can be use, with dimensions no lower than those indicated, and keeping in mind the pressure drops of the indoor exchanger and of the installation.
Pump dimensioning should be carried out considering a nominal flow that allows the Δt of the project within the limits of the unit: min. 3° C and max. 7° C. The head pressure of the pump chosen must cover the pressure drops of the installation plus the pressure drops of the chiller.
It is convenient that the tubing connection be carried out by means of anti-vibratory couplings.
In all cases, a flow switch must be installed so as to avoid the possibility of operation without water circulation, as well as a water filter (both are obligatory for warrantee application).
In the water feedback tubing, an expansion vessel adequate to the total volume of the water in the installation should also be installed in the unit.
Chiller water volume is as follows:

Size	Litres
42	25
62	28
82	38.2
102	38.2
122	78.5
152	73.5

During the winter season, with outdoor temperatures below 0° C, precautions should be taken to avoid the water from freezing in the tubing networks and inside the inner chiller exchanger.
The following solutions are usually applied:
a) Drain the circuit.
b) Fill the circuit with an antifreeze mixture (glycol).
c) Keep the circulator in constant operation.
Note: See hydraulic connections diagram.

Hydraulic connections diagram



Hydro kits GH

To avoid discomfort caused by a water temperature drop in the defrost cycle, or tripping of the antifreeze thermostat in small volume installations, it is necessary to use an accumulator tank to increase the thermal inertia of the installation. Water volumes of the GH kits and their compatibility with the YLCC/YLCC-H units are as follows:

YLCC / YLCC-H	Litres
42	200
62	260
82	260
102	600 S
122	600 S
152	600 P

Nevertheless, in each case the minimum volume needed for the installation should be checked.

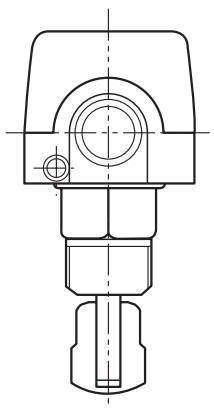
Circulating pump

For satisfactory operation of the units, it is essential to select an adequate pump to supply sufficient flow and pressure to the hydraulic circuit. Use the following table for this purpose.

YLCC/ YLCC-H unit	Approximate pump flow Δt 5°C		Minimum pressure supplied by the pump	
	l/h	l/s	m WG	kPa
42	6 700	1.86	15	147
62	10 100	2.8	15	147
82	13 500	3.75	15	147
102	17 200	4.77	15	147
122	19 900	5.53	15	147
152	25 800	7.16	15	147

Flow switch

The hydraulic circuit to which the unit is connected is equipped with a flow switch that avoids operation of the air conditioner without sufficient water flow. The installation of this switch is absolutely indispensable, as well as checking correct setting and operation during installation commissioning.



Application to YLCC/YLCC-H units

These flow switches can be used on water or glycol circulating tubing. They are designed for locking; that is to sea, protection against a lack of liquid circulation. The switch is to be mounted on horizontal tubing, in a section having a straight run of at least five times the tubing diameter on each side of the flow switch. Do not install near valves, elbows or openings. Installation should be such that terminals are accessible for easy connection. The switch is marked with the flow direction. For 1" tubing, mount the switch on a standard 1" x 1" x 1" tee joint. Use a reducer tee on larger size tubing to keep the flow switch set to same and achieve an adequate length of the tab in the flow current. Example: use a 2" x 2" x 1" tee for 2" tubing. If a standard tee is used, install a buffer or sleeve at the top of the opening. Adjust the tab length to the tubing size. For 1", 2" or 3" tubing, us the tab segments supplied. For example: for 2" tubing remove the 3" tab; for 1 ½" tubing, cut the tab to the tubing size or use the 1" tab.

L/min. flow values needed for switch operation

No part of the tab should touch the tubing or narrowing points of same. Screw flow switch on in a position in which the plane of the tab is in right angle to the flow. The arrow appearing on the side of the box should point in the flow direction.

Setting

This switch is factory-set approximately at the minimum flow value (see "Flow values table"). To achieve a higher flow value, turn the adjusting screw on the scale clockwise.

Flows

This table shows adjustable flows based on real test data, using 1", 2" and 3" vanes for 1-6" tubing. The differential (difference between ON and OFF) depends upon flow conditions. (Flows for "flow increase" that appear in parenthesis are predetermined values.)

Tubing dia.	Vane dia.	Adjustable flow (litres/minute)			
		Min.		Max.	
		Flow decrease	Flow increase	Flow decrease	Flow increase
1"	1	18	(21)	45	(50)
1 1/4"	1	43	(46)	100	(102)
1 1/2"	1	63	(68)	140	(145)
2"	1	105	(120)	250	(255)
2 1/2"	1	195	(200)	565	(570)
3"	1	360	(370)	850	(880)
2"	2	50	(50)	150	(155)
2 1/2"	2	105	(120)	355	(360)
3"	2	170	(180)	480	(490)

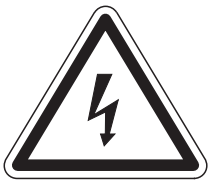
Note: Flow decrease: Flow at which the switch is activated when flow decreases.
Flow increase: Flow at which the switch is activated when flow increases.

Wiring

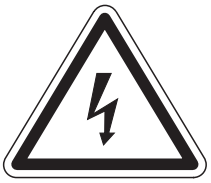
Each unit is supplied with a control box to which the power supply will be connected through an automatic switch or a fused main switch.

Wiring should be carried out in accordance with the corresponding wiring diagram of the unit, taking into account general characteristics and limits of use (see corresponding table).

Wiring should always be carried out in accordance with applicable national regulations.



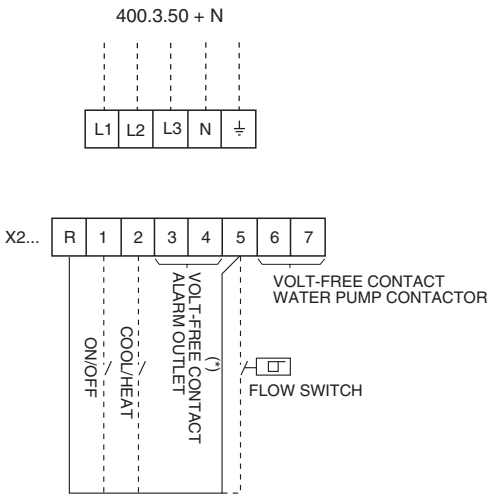
Loose cables can cause overheating of terminals or incorrect operation of the unit. Fire hazards may also exist. Therefore, make sure all cables are connected firmly.



Do not connect power supply to the unit, nor turn it on, until all tubing and wiring is connected. Check correct power supply connection to the units in accordance with the wiring diagrams.

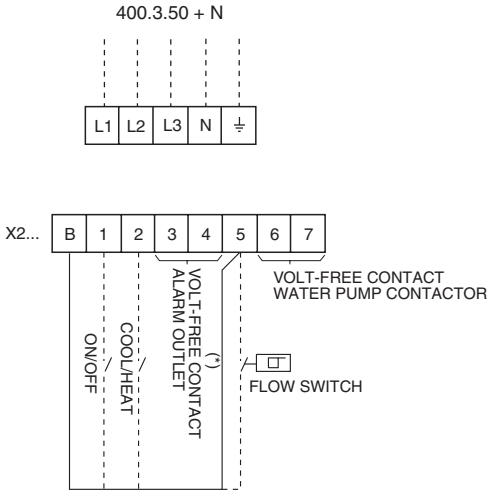
Wiring diagrams

Power and operating connection
YLCC/YLCC-H 42, 62, 82 & 102



(*) REMOVE JUMPER BETWEEN TERMINALS R and 5.
CONNECT A FLOW SWITCH

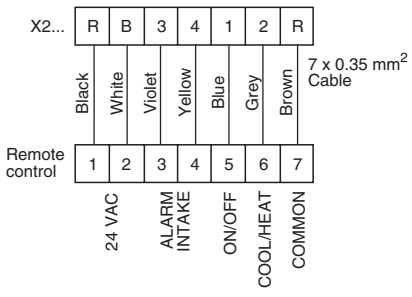
YLCC/YLCC-H 122 & 152



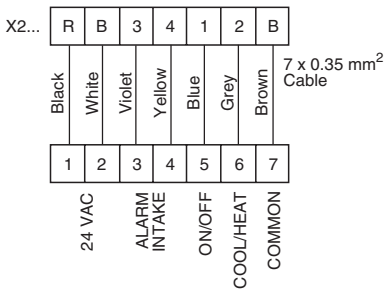
(*) REMOVE JUMPER BETWEEN TERMINALS B and 5.
CONNECT A FLOW SWITCH

Remote control connection (optional)

YLCC/YLCC-H 42, 62, 82 & 102



YLCC/YLCC-H 122 & 152



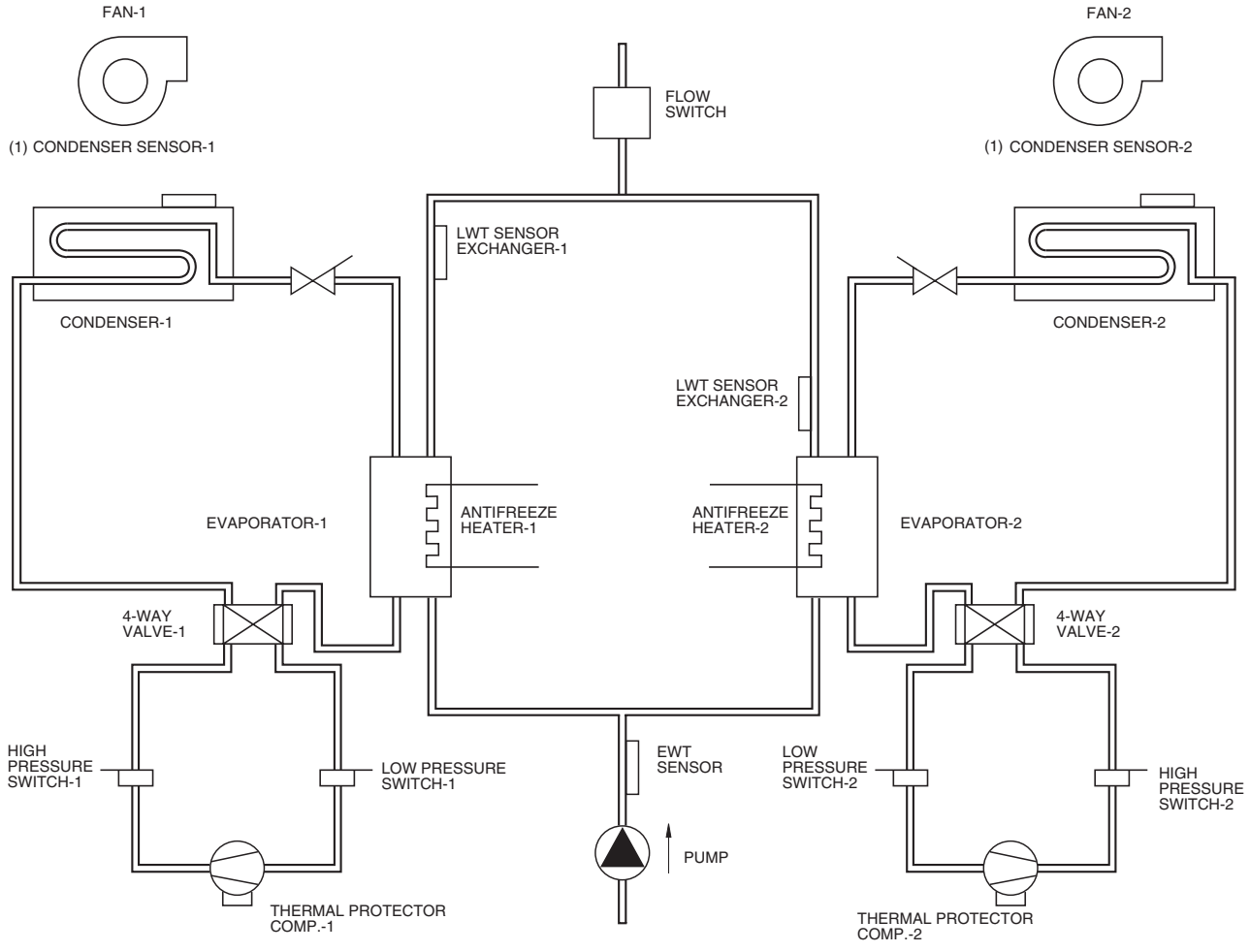
Operating and start-up instructions

YLCC and YLCC-H control system

The YLCC and YLCC-H-42, 62, 82 and 102 (two separate compressors and two cooling circuits) is a multipurpose controller programmed for use with air-water chiller and heat pump units.

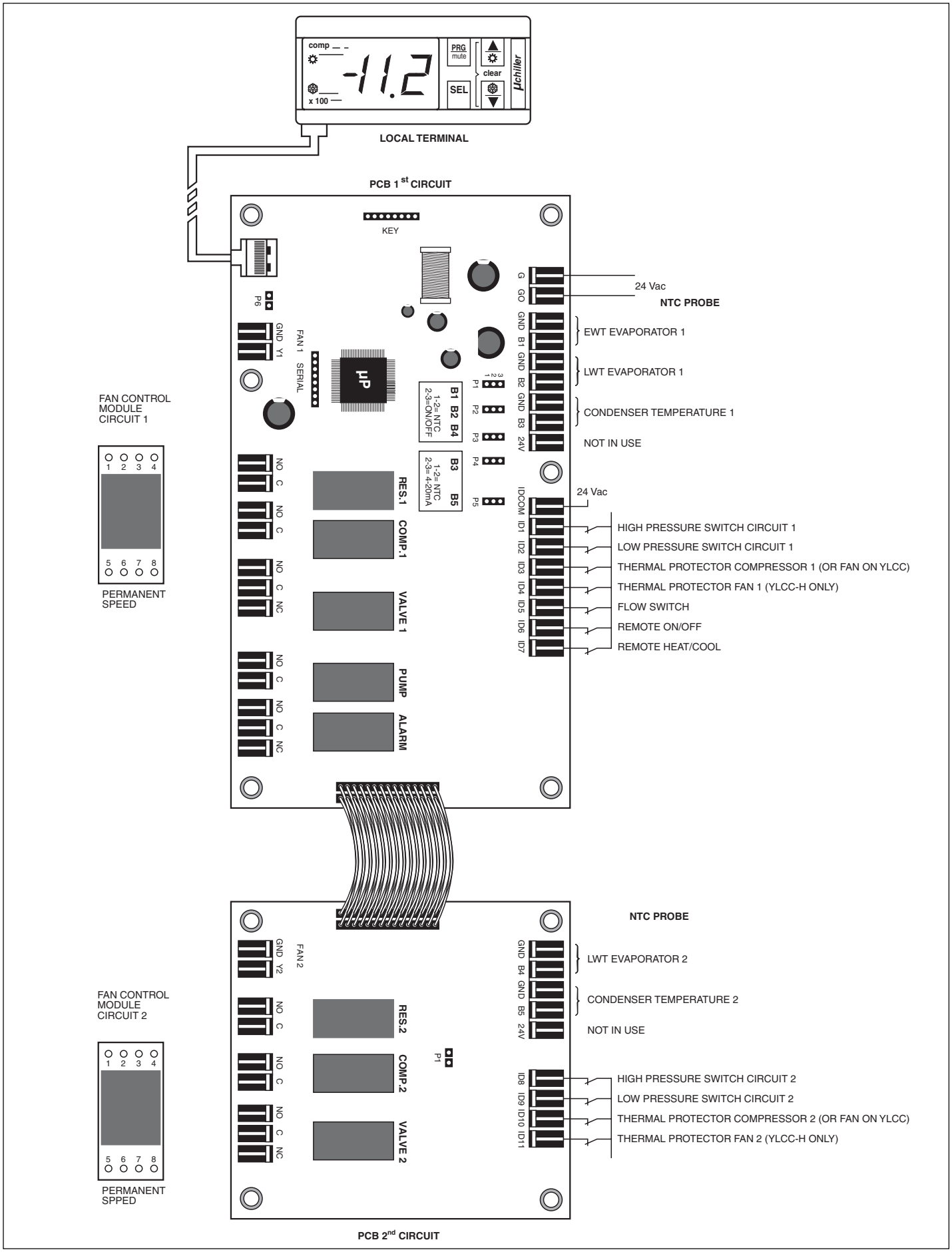
Standard components

- **System and first cooling circuit control base plate**. This is the central nucleus that processes the signals coming from the probes and protection elements of the entire system. Directly receives the signals from the first circuit and controls its active elements: compressor 1, fan 1, 4-way valve 1, water circulating pump, alarm relay and antifreeze heater 1 (if installed). 24 Vac.
- **Second cooling circuit expansion and control board.** This is an expansion of the base plate to be connected by means of a specific connector. Receives the signals from the second circuit and controls its active elements: compressor 2, fan 2, 4-way valve 2 and backup heater 2 (if installed).
- **Local terminal.** For accessing and controlling the system by means of the display, keys and LEDs. Allows selecting cool, heat and off functions. Also allows changing operating parameters, as well as monitoring the system. Can be installed at a distance of 2 m. from the base plate. Is included inside the control panel and is to be connected to the base plate by means of an 8-lead telephone cable.
- **Fan ON/OFF control module.** Used on heat pump units with centrifugal fans equiped with three-phase motors with on speed control. These modules should be connected to the base and expansion plates respectively. They act directly upon the fan contactor.
- **NTC probes.** 5 NTC probes are used to read system temperatures. One is located at the common water intake of the two evaporating units, another two at each water outlet of said units, and the remaining two at the coil to control defrost cycles. (On cooling units, 3 NTC probes are used: one at water intake and two at water discharge).



Note: (1) Used on heat pump models.

Interconnecting diagram



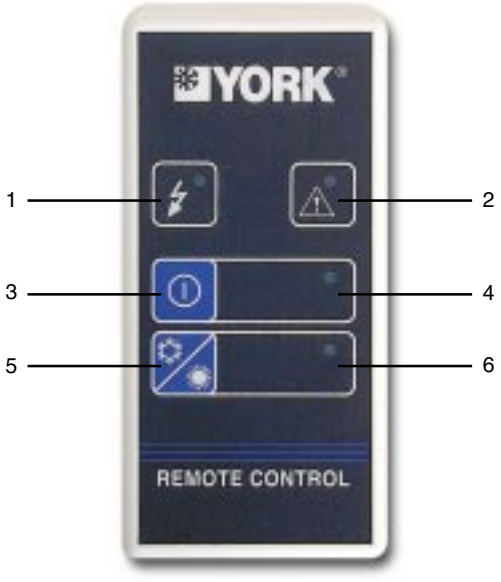
Identification of system intakes and outlets

Terminals	Description
B1-GND	Water temp. probe at evaporating unit intake
B2-GND	Water temp. probe at evaporating unit outlet (Circuit 1)
B3-GND	Fan speed and circuit defrost control probe (Circuit 1)
B4-GND	Evaporating unit water discharge temp. (Circuit 2)
B5-GND	Fan speed and circuit defrost control probe (Circuit 2)
ID1-IDCOM	High pressure switch (Circuit 1)
ID2-IDCOM	Low pressure switch (Circuit 2)
ID3-IDCOM	Compressor thermal protector (Circuit 1) (YLCC and YLCC-H - 82 and 102 only) (or fan on YLCC)
ID4-IDCOM	Fan thermal protector (Circuit 1) (YLCC-H only)
ID5-IDCOM	Water flow switch and auxiliary contact of pump contactor
ID6-IDCOM	Remote ON/OFF
ID7-IDCOM	Remote cool/heat
ID8-IDCOM	High pressure switch (Circuit 2)
ID9-IDCOM	Low pressure switch (Circuit 2)
ID10-IDCOM	Compressor thermal protector (Circuit 2) (YLCC and YLCC-H - 82 and 102 only) (or fan on YLCC)
ID11-IDCOM	Fan thermal protector (Circuit 2) (YLCC-H only)
Y1-GND	PWM analogical outlet for fan control (Circuit 1)
Y2-GND	PWM analogical outlet for fan control (Circuit 2)
RES. 1	Antifreeze or backup heater (Circuit 1)
COMP. 1	Compressor (Circuit 1)
VALVE 1	4-way valve (Circuit 1)
PUMP	Water pump
ALARM	General alarm remote signal
RES. 2	Antifreeze or backup heater (Circuit 2)
COMP. 2	Compressor (Circuit 2)
VALVE 2	4-way valve (Circuit 2)

Accessories

Remote control unit

For access and control by means of the buttons and LEDs available.
Allows selecting the cool, heat and OFF functions, and the red LED indicates any failure.
Can be installed at a maximum distance of 50 m. The remote terminal should be connected to the unit with a 7 x 0,35 mm² cable.



1- Voltage indicator LED. When the LED is on, the machine is powered.
2- General alarm LED. When this LED is on, the unit has a failure.
3- On/Off push button.
4- On/Off LED. When on, the unit is in operation.
5- Cool/heat pushbutton.
6- Cool/heat LED. When LED is off, cool mode. When the LED is on, heat mode.

Programmable key (Fig. 1)

Allows uploading and downloading the unit operating program by means of the user terminal keys. Proceed as follows:

Copying the key on the EEPROM memory of the unit

1.- Insert the key in the specific base plate connector.
2.- With the unit turned off, press ▲ and PRG keys simultaneously.
3.- Holding these keys down, turn the system on.
4.- Once the copying process is over, the letters CE will appear on the display.

Copying the EEPROM memory on the key

1.- Insert the key in the specific base plate connector.
2.- With the unit turned off, press ▼ and PRG keys simultaneously.
3.- Holding these keys down, turn the system on.
4.- Once the copying process is over, the letters EC will appear on the display.

Serial board RS485 (Fig. 2)

Allows connecting the system to a standard RS485 monitoring network. By means of the clip-switch system included, up to 199 units can be addressed. For installation, proceed as follows:

1.- Turn the unit off.
2.- Insert the RS485 board in the SERIAL connector of the base plate.
3.- When the serial line connection is being carried out, pay attention to the polarity indicated.
4.- The serial line should be closed by means of a 120 ohms ¼ w resistance installed between terminals TX/RX + and TX/RX - of the board located at the end of the network.

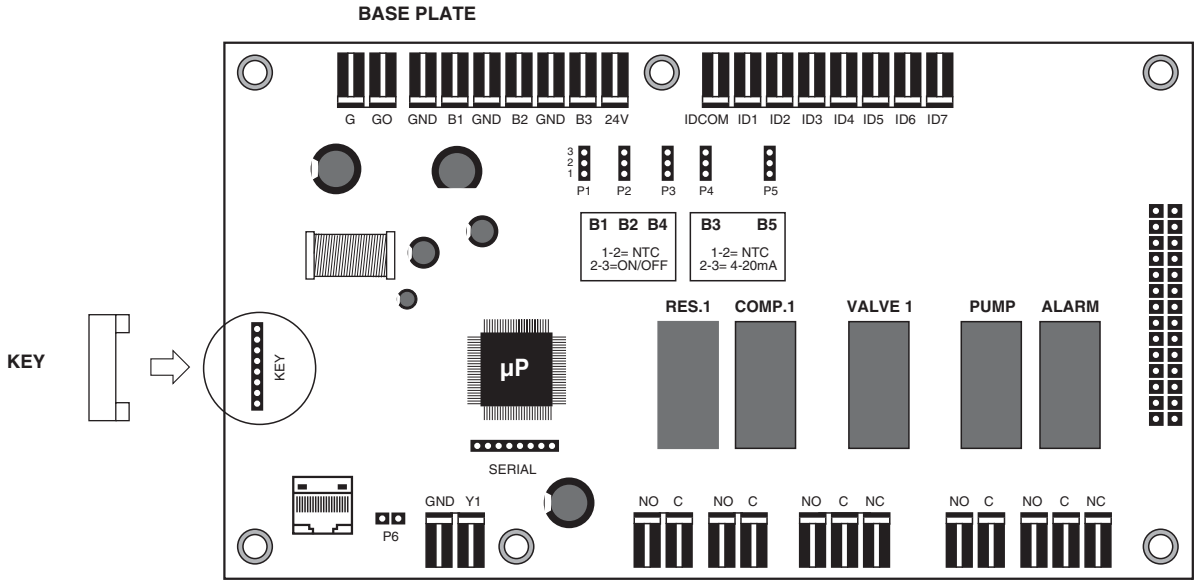


Fig. 1

RS485 serial board

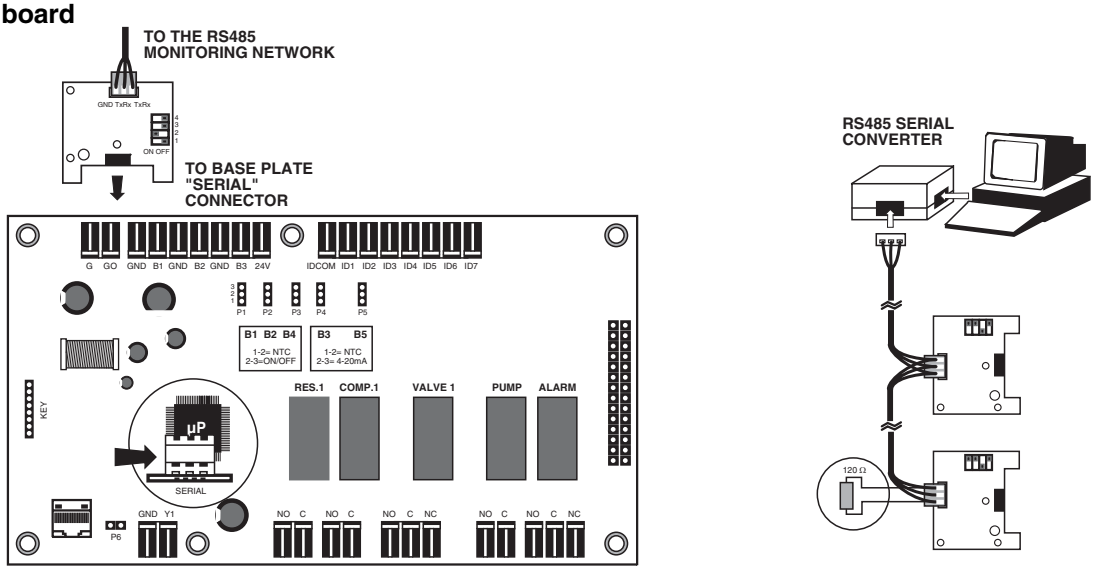


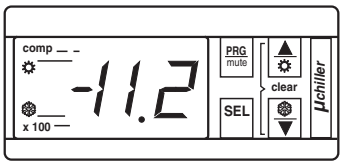
Fig. 2

Unit addressing

Unit addressing within the network can be selected by means of the value given to parameter HA and the dip-switch system configuration included in serial board RS485. Effective addressing is obtained by adding the offset value taken from the following table to HA.
For example, if the HA value is 12 and dip-switch 1 is set to ON, the address obtained will be 12 + 128 = 140.

OFFSET	DIP 1	DIP 2	DIP 3	DIP 4
0	off	off	off	off
16	off	off	off	ON
32	off	off	ON	off
48	off	off	ON	ON
64	off	ON	off	off
80	off	ON	off	ON
96	off	ON	ON	off
112	off	ON	ON	ON
128	ON	off	off	off
144	ON	off	off	off
160	ON	off	ON	off

Unit control



Display

The display always shows, by default, the return water temperature detected by probe B1. This comprises three figures with automatic viewing of a decimal point between -19.9 and +19.9° C. Beyond this range, the displayed value will always comprise two figures. E.g. 21° C. Nevertheless, the regulator in the internal program always operates based on tenths of a degree.

Unit status

Unit status information is indicated by 5 LEDs located on the terminal display, and 2 LEDs (yellow and green) on the base plate.

Led	Flashing	On
Comp. (left)	Comp. 1 in demand (Temp.)	Comp. 1 activated
Comp. (right)	Comp. 2 in demand (Temp.)	Comp. 2 activated
Cool		Operating in COOL
Heat		Operating in HEAT
x 100		Value x 100

Keyboard

The terminal keyboard is comprised of four keys: PRG/mute, SEL, ▲/HEAT and ▼/COOL. These keys allow selecting unit operating mode, monitor its status and set operating parameters. There are more keys available on the remote terminal version for working ease. Key functions and their variants, when pressed two at a time, are detailed below.

Activation/deactivation of "COOL" function

The COOL function can be activated and deactivated by pressing the COOL key for over 5 seconds. It is impossible to go directly from the HEAT to the COOL mode without previously deactivating the HEAT function.

Activation/deactivation of "HEAT" function

The HEAT function can be activated and deactivated by pressing the HEAT key for over 5 seconds. It is impossible to go directly from the COOL to the HEAT mode without previously deactivating the COOL function.

Access to "DIRECT" parameters

The DIRECT parameters are accessible to the user and are related to set points and their differentials, to entering and discharge water temperature of the exchanger, to the refrigerant temperature in the coil and to the compressor and pump operating hours counters. Pressing the SEL key for over 5 seconds displays the code of the first parameter, which is the cool cycle set point. Pressing the ▲ and ▼ keys moves you through all DIRECT codes available. Pressing SEL once again displays the parameter value of the pre-selected code, which can be changed with the ▲ and ▼ keys. Pressing the PRG key memorizes the new values and exits the procedure. If for over 10 seconds no modification is made, the display begins to flash. If no other key is pressed in 60 seconds, the unit will go back to normal status without changing any parameter.

"DIRECT" parameter	Description	Factory value
r1	COOL set point	12°C
r2	COOL cycle differential	3°K
r3	HEAT set point	40°K
r4	HEAT cycle differential	3°K
r6	Water discharge temp. exchanger 1	Readout °C
r7	Water discharge temp. exchanger 2	Readout °C
r8	Refrigerant temp. coil 1	Readout °C
r9	Refrigerant temp. coil 2	Readout °C
c9	Operating hours compressor 1	Readout hours x 100
cA	Operating hours compressor 2	Readout hours x 100
cC	Operating hours water pump	Readout hours x 100

Access to "USER" parameters

The USER parameters are those used by the unit to operate accordingly. These are protected by a password to avoid access to unauthorized personnel. Pressing the PRG key for over 5 seconds displays 00 flashing. Enter the password (authorized personnel) and press SEL. Pressing the ▲ and ▼ keys moves you through all USER parameters available. Pressing SEL once again displays the parameter value of the

pre-selected code, which can be changed with the ▲ and ▼ keys. Pressing the PRG key memorizes the new values and exits the procedure. If for over 10 seconds no modification is made, the display begins to flash. If no other key is pressed in 60 seconds, the unit will go back to normal status without changing any parameter.

Access to "FACTORY" parameters

The FACTORY parameters are factory-set. These are protected by a password to avoid access to unauthorized personnel. Pressing the PRG and SEL keys simultaneously for over 5 seconds displays 00 flashing. Enter the password (authorized personnel) and press SEL. The first FACTORY parameter is displayed. Pressing the ▲ and ▼ keys moves you through all FACTORY parameters available. Pressing SEL once again displays the parameter value of the pre-selected code, which can be changed with the ▲ and ▼ keys. Pressing the PRG key memorizes the new values and exits the procedure. If for over 10 seconds no modification is made, the display begins to flash. If no other key is pressed in 60 seconds, the unit will go back to normal status without changing any parameter.

Deactivation of the buzzer

To deactivate the alarm buzzer, press the MUTE key. (The buzzer will become operative only is programmed previously.)

Alarm reset

Pressing the ▲ and ▼ keys for over 5 seconds (if using a remote terminal, press the CLEAR key for over 5 seconds) will cancel present in the memory. The alarm message will also disappear from the display and the alarm relay will be deactivated.

Forces defrost (YLCC-H)

Pressing the SEL and ▲ keys simultaneously for over 5 seconds activates the forced defrost cycle of both coils, as long as the temperature of said coils is below the value set for finalizing defrost.

Clearing hour counters

When displaying compressor or heat pump operating hours (parameters c9, cA and cC), the counter can be cleared by pressing the ▲ and ▼ keys simultaneously (if a remote terminal is being used, press the CLEAR key).

Installation of default parameters

With the unit turned off, press the PRG key. Holding this key down turns the system on. Once this process is over, the letters dF appear on the display. The default parameters are those included by the controller manufacturer and affect the DIRECT and USER parameters based on the FACTORY values.

Adjusting display contrast

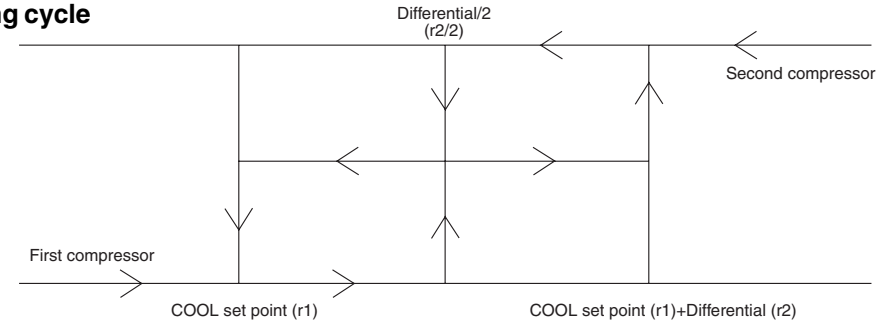
On remote terminals only. Press the key located between MUTE and PRG to access the three contrast levels available.

Summery of keyboard functions

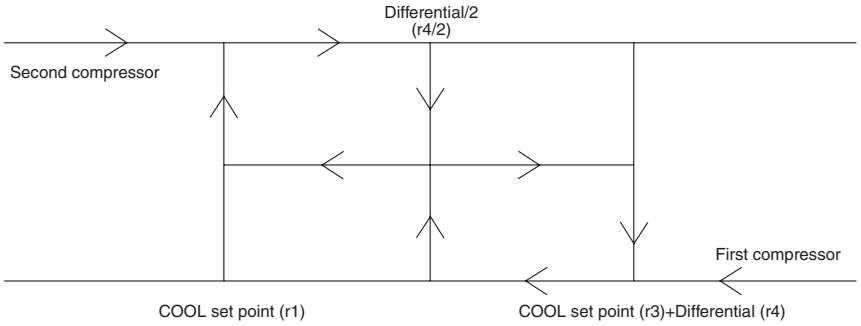
Key	Unit status	Action
SEL	Normal operation. Entering water temp. is displayed (probe B1)	DIRECT parameters appear after 5 seconds
	List of parameters	Display of values
	Display of values	Display list of parameters
PRG	Normal operation	USER parameters appear after 5 seconds
	List of parameters	Memorizes EEPROM values and then displays probe B1 temperature.
	Display of values	Memorizes EEPROM values and then displays probe B1 temperature.
	Buzzer active	Buzzer goes off
UP / HEAT	Normal operation	Activates or deactivates COOL mode after 5 seconds
	List of parameters	Display of parameters
	Display of values	Increases value
DOWN / HEAT	Normal operation	Activates or deactivates HEAT mode after 5 seconds
	List of parameters	Display of parameters
	Display of values	Decreases value
PRG + SEL	Normal operation	FACTORY parameters appear after 5 seconds (password)
SEL + UP	Normal operation	Starts forced defrost after 5 seconds, if allowed by temperature conditions
UP + DOWN	Normal operation	Resets alarms after 5 seconds
	Display of hours	Clears counter
PRG	In start-up	Installs default parameters and values
PRG + UP	In start-up	Copies key on controller EEPROM
PRG + DOWN	In start-up	Copies EEPROM on the key

Operation of set points

Operation of cooling cycle



Operation of heating cycle

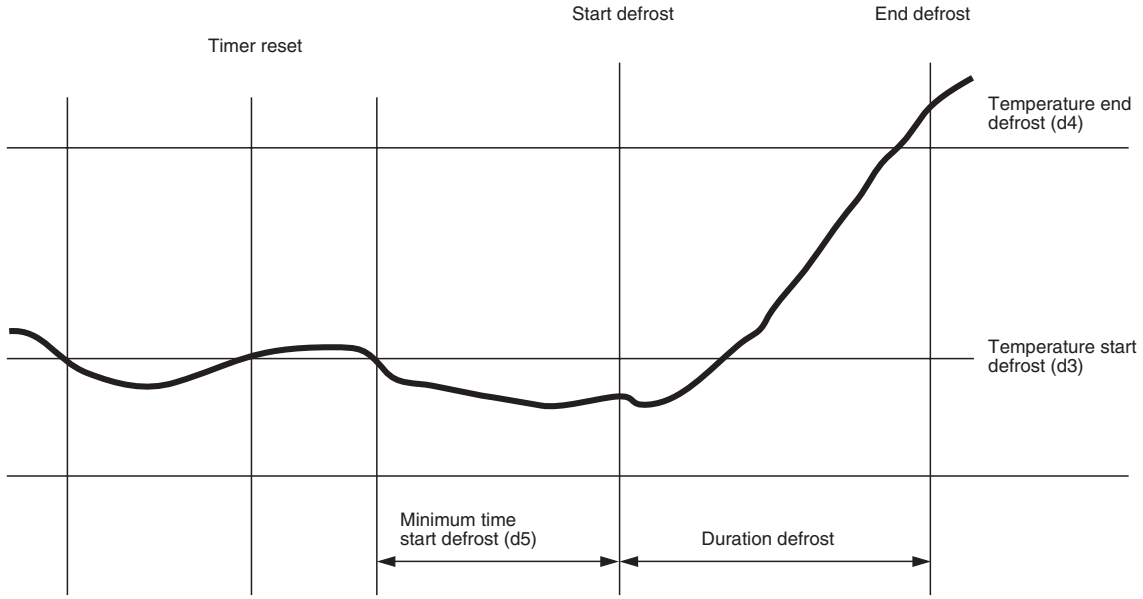


Parameter	Description	Unit	Factory value	
			YLCC-H	**YLCC**
r1 (DIRECT)	COOL set point	°C	12	12
r2 (DIRECT)	COOL cycle differential	°K	3	3
r3 (DIRECT)	HEAT set point	°C	40	40
r4 (DIRECT)	HEAT cycle differential	°K	3	3
rA (USER)	Minimum COOL set point	°C	8	8
rb (USER)	Maximum COOL set point	°C	30	30
rC (USER)	Minimum HEAT set point	°C	15	15
rd (USER)	Maximum HEAT set point	°C	50	50
/d (USER)	Degrees C or F (0 = °C; 1 = °F)		0	0

Compressors

Parameter	Description	Unit	Factory value	
			YLCC-H	**YLCC**
c1 (USER)	Minimum run time	sec.	5	5
c2 (USER)	Minimum off time	10 secs.	1	1
c3 (USER)	Time between two starts of the same compressor	10 secs.	36	36
c4 (USER)	Time between two starts of the two compressors	sec.	10	10
c5 (USER)	Time between off of the two compressors	sec.	3	3
c6 (USER)	Start timing	sec.	10	10
c7 (USER)	Compressor start delay regarding the pump	sec.	20	20
c8 (USER)	Pump delay regarding the compressor	min.	20	20
c9 (DIRECT)	Compressor 1 operating hours counter	hours		
cA (DIRECT)	Compressor 2 operating hours counter	hours		
cb (USER)	Operating hours for maintenance alarm	hours		
cC (DIRECT)	Pump operating hours counter	hours		
r5 (FACTORY)	Compressor rotation (0 = yes; 1 = 0)		0	0

Defrost cycle



Parameter	Description	Unit	Factory value	
			YLCC-H	**YLCC**
d1 (USER)	Activation defrost (0 = no; 1 = yes)		1	1
d2 (USER)	Defrost by time/temp. (0 = time; 1 = temp.)		1	1
d3 (USER)	Temperature start defrost	°C	-1	-1
d4 (USER)	Temperature end defrost	°C	5	5
d5 (USER)	Minimum time for defrost start	sec.	60	60
d6 (USER)	Minimum duration defrost	sec.	0	0
d7 (USER)	Maximum duration defrost	min.	10	10
d8 (USER)	Time between two defrost cycles	min.	30	30
d9 (USER)	Delay between defrost of both circuits	min.	10	10
db (USER)	Backup heater during defrost (0 = no; 1 = yes)		0	0
dc (USER)	For compressor before defrost (between 1 and 3) (a)	min.	0	0
dd (USER)	For compressor after defrost (between 1 and 3) (b)	min.	0	0

(a) When defrost conditions are reached, and before starting the cycle, the compressor turns off during the dc interval (can be set to between 1 and 3 minutes). Once the compressor is off, the 4-way valve inverts its position during the dc/2 interval to allow pressure balancing. During this process, the controller does not consider compressor programmed timings and, therefore, the compressor goes on and off intermediately.
If dc = 0, this procedure is deactivated.

(b) When the defrost cycle is over, the compressor turns off during the dd interval (can be set to between 1 and 3 minutes). Once the compressor is off, the 4-way valve inverts its position during the dd/2 interval to allow pressure balancing and elimination of drops of water in the outdoor exchanger. During this process, the controller does not consider compressor programmed timings and, therefore, the compressor goes on and off intermediately.
If dd = 0, this procedure is deactivated.

Pump operation

Three operating modes of the water pump can be selected in accordance with the value give to the H5 parameter.

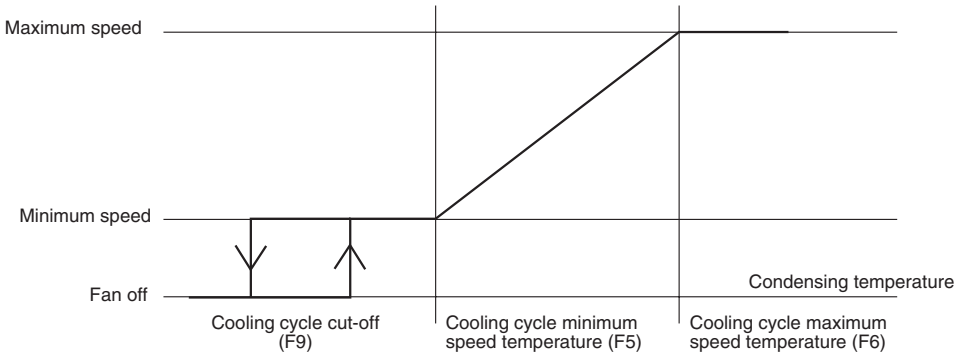
Parameter H5	Pump operating mode
0	Pump absent
(1)	In permanent operation
2	In operation under call from the controller (demand for cool or heat)

- In “pump absent” mode, the flow switch alarm is deactivated.
- The water pump will start 20 seconds before compressor (c7) starts.
- When the compressor turns off, the pump will continue operating for 20 minutes more (c8).
- To see pump operating hours, see DIRECT cC parameter.

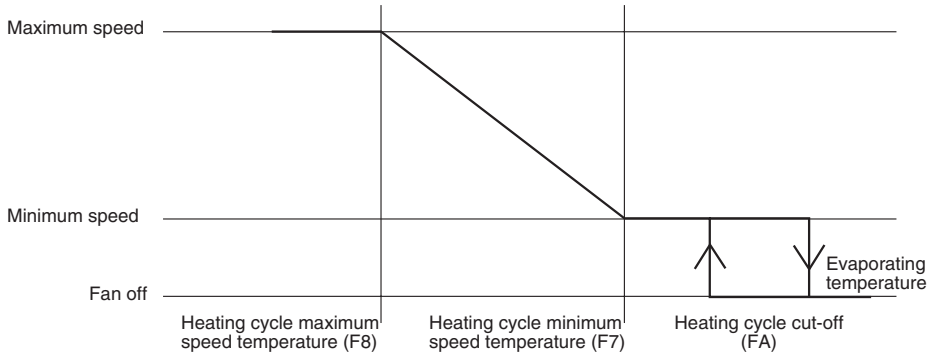
Single-phase axial or centrifugal fans operation with speed control

Speed selection is carried out in both the cooling as well as the heating cycles.

Cooling cycle (compressor on)



Heating cycle (compressor on)



Parameter	Description	Unit	Factory value	
			YLCC-H	YLCC
F1 (FACTORY)	Fan presence (0 = no, 1 = yes)		1	0
F2 (USER)	Operating mode. (0 = always ON; 1 = parallel with comp.; 2 = parallel with comp. Reg. ON/OFF; 3 = parallel with comp. Speed control).		1	1
F3 (FACTORY)	Minimum voltage threshold at triac (a)	steps	0	0
F4 (FACTORY)	Maximum voltage threshold at triac (b)	steps	166	166
F5 (USER)	Cooling cycle minimum speed temp.	°C	35	35
F6 (USER)	Cooling cycle minimum speed temp.	°C	45	45
F7 (USER)	Heating cycle minimum speed temp.	°C	35	35
F8 (USER)	Heating cycle maximum speed temp.	°C	30	30
F9 (USER)	Cooling cycle fan off temperature	°C	20	20
FA (USER)	Heating cycle fan off temperature	°C	40	40
Fb (USER)	Fan start time	4 secs.	0	0

(a) Units with single-phase axial or centrifugal fans with speed control. Phase cut-off modules by triac are used. The values indicated do not match the real voltage applied, but rather a variable internal voltage of the controller.
Units with three-phase centrifugal fans without speed control. Set parameter F3 = 0 and close jumpers P1 and P6 of the base and expansion plates.

(b) Units with single-phase axial or centrifugal fans with speed control. Phase cut-off modules by triac are used. The values indicated do not match the real voltage applied, but rather a variable internal voltage of the controller.
Units with three-phase centrifugal fans without speed control. Set parameter F4 = 166 and close jumpers P1 and P6 of the base and expansion plates.

Alarms and messages

Message	Cause	Reset	Terminals	Base plate yellow LED	Alarm buzzer and relay
E1	Probe B1	Automatic	B1 - GND	Flashing fast (2 flashes per sec.)	Activated
E2	Probe B2	Automatic	B2 - GND		
E3	Probe B3	Automatic	B3 - GND		
E4	Probe B4	Automatic	B4 - GND		
E5	Probe B5	Automatic	B5 - GND		
EE	EEPROM failure	Automatic		Normal flashing (1 flash x sec.)	Deactivated
FL	Flow switch	Automatic	ID5 - IDCOM	Flashing fast	Activated
H1	High pressure circuit 1	Manual	ID1 - IDCOM		
L1	Low pressure circuit 1	Manual	ID2 - IDCOM		
C1	Compressor 1 thermal protector or fan 1 thermal protector (YLCC)	Manual	ID3 - IDCOM		
F1	Fan 1 thermal protector (YLCC-H)	Manual	ID4 - IDCOM		
A1	Antifreeze	Manual			
d1	Defrost circuit 1	Automatic		Normal flashing	Desactivated
r1	Defrost failure circuit 1	Automatic			
n1	Maintenance compressor 1	Manual			
H2	High pressure circuit 2	Manual	ID8 - IDCOM	Flashing fast	Activated
L2	Low pressure circuit 2	Manual	ID9 - IDCOM		
C2	Compressor 2 thermal protector or fan 2 thermal protector (YLCC)	Manual	ID10 - IDCOM		
F2	Fan 2 thermal protector (YLCC-H)	Manual	ID11 - IDCOM		
A2	Antifreeze 2	Manual			
d2	Defrost circuit 2	Automatic		Flashing fast	Deactivated
r2	Defrost failure circuit 2	Automatic			
n2	Maintenance compressor 2	Manual			
Cn	Communication error	Automatic		Cn flashing	

Yellow and green LEDs on base plate

The yellow LED indicates unit operation. Under normal conditions, it flashes once per second. In the case of an alarm, it flashes twice per second. When it goes off, no voltage is reaching the base plate.
The green LED indicates communication with the remote terminal. In the case of a communication failure, this LED remains off (failures are normally due to bad contact between the telephone connector and one of the female bases on the main board or the terminal.

Probe calibration

If necessary, the probes can be calibrated by using the following parameters.

Parameter	Description	Unit
/6	Calibration probe B1 (entering water temperature)	0.1°C/F
/7	Calibration probe B2 (discharge water temperature exchanger 1)	0.1°C/F
/8	Calibration probe B3 (refrigerant temperature circuit 1)	0.1°C/F
/9	Calibration probe B4 (discharge water temperature exchanger 2)	0.1°C/F
/A	Calibration probe B5 (refrigerant temperature circuit 2)	0.1°C/F

Remote ON/OFF

A remote ON/OFF digital intake can be connected between terminals ID6-IDCOM of the base plate. To activate this intake, give value 1 to parameter H7 (H7 = 1). Said digital intake has priority over the one originating at the keyboard. When this digital intake is open, the unit remains in the OFF mode.

Remote COOL/HEAT

A remote COOL/HEAT digital intake can be connected between terminals ID7-IDCOM of the base plate. To activate this intake, give value 1 to parameter H6 (H6 = 1). When this function is activated, the COOL/HEAT digital signal overrides the one originating at the keyboard and the unit remains in the COOL mode.

Protection of "DIRECT" parameters

Parameter H9 allows deactivating access to the DIRECT and USER parameters from the local and remote terminals. In any case, parameter values can be displayed but not changed. The following functions will also be deactivated: cool/heat selection, forced defrost and clearing of hour counters. To select the coo, heat, off and on functions, the remote digital cool/heat and remote on/off intakes must be used.

Parameter H9	Remote terminal	Local terminal
0	Activated	Deactivated
1	Activated	Activated
2	Deactivated	Deactivated
3	Deactivated	Activated

Buzzer configuration

Parameter P4 allows selecting three buzzer operating modes.

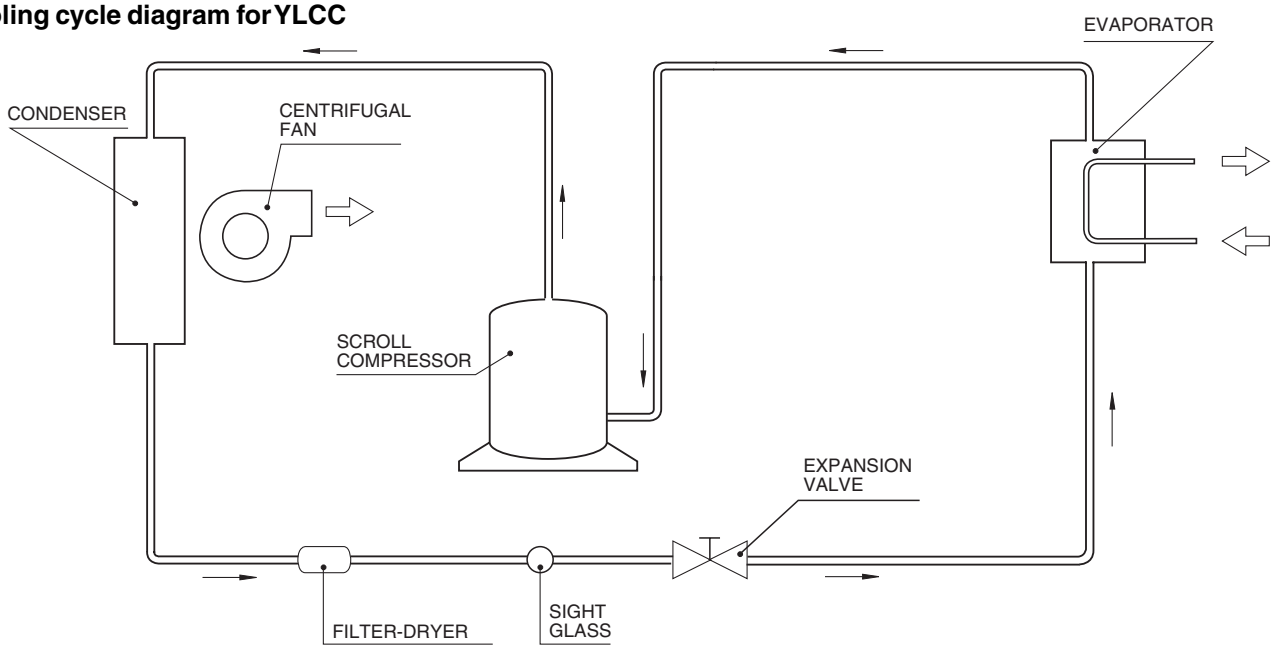
Parameter P4	Buzzer function
0	Always disconnected
Between 1 & 14	Disconnects once this value in minutes is over
15	Operating until the cause of the alarm disappears

Operation

Cooling cycle YLCC

The heat exchanger for water acts as an evaporator unit, while the finned coil acts as a condenser unit. The summer cycle diagram indicates the circuit followed by the refrigerant.

Cooling cycle diagram for YLCC



The units are made up of two circuits, with common water connections.

Heat exchange takes place between the liquid (water or water and glycol) and the refrigerant in the coaxial heat exchanger. The water is cooled and the evaporates refrigerant. Then the Scroll type compressor compresses the refrigerant (gas) until the condensing pressure is reached, which then goes on to the air cooled condensing unit. In the air cooled condensing unit, heat exchange takes place between the air and the refrigerant. The air is heated and removed from the chiller (heat rejection). The refrigerant is condensed and subcooled. Then the refrigerant (liquid) goes on to the expansion valve where it is expanded down to the evaporating pressure, and then goes on to evaporating unit to begin a new cooling cycle.

Cooling cycle YLCC-H

The 4-way valve is not activated. Heat exchange takes place between the liquid (water or water and glycol) and the refrigerant in the coaxial heat exchanger. The water is cooled and the refrigerant evaporates. Then the Scroll type compressor compresses the refrigerant (gas) until the condensing pressure is reached, which then goes on to the air cooled condensing unit. In the air cooled condensing unit, heat exchange takes place between the air and the refrigerant. The air is heated and removed from the chiller (heat rejection). The refrigerant is condensed and subcooled. Then the refrigerant (liquid) goes on to the expansion valve where it is expanded down to the evaporating pressure is reached, and then goes on to evaporating unit to begin a new cooling cycle.

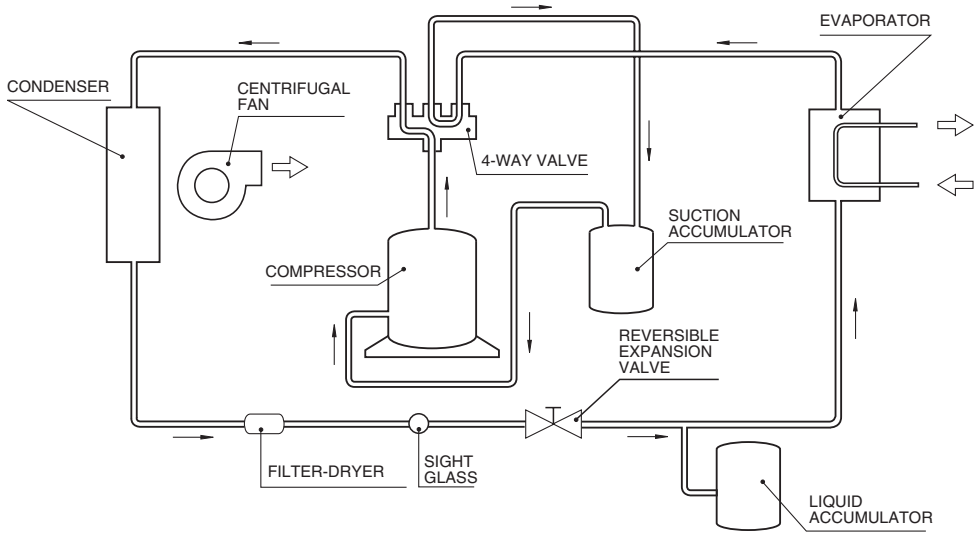
Heating cycle YLCC-H

In heating mode this cycle is inverted. The 4-way valve is activated. The condensing unit becomes the evaporating unit, and the evaporating unit becomes the condensing unit. The water is heated in the coaxial heat exchanger.

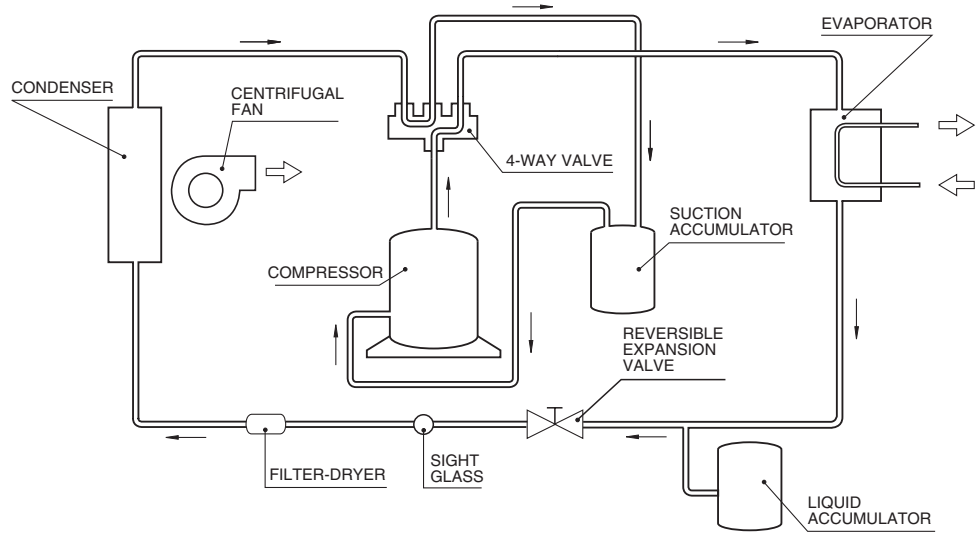
Defrost

When the probe detects a temperature below 0.5° C (factory-set freezing point), this cycle is inverted. The defrost cycle is activated for a maximum of 4 minutes. If, during this period of time, the temperature rises to over +6° C, the defrost cycle is deactivated.

Summer cycle diagram for YLCC-H



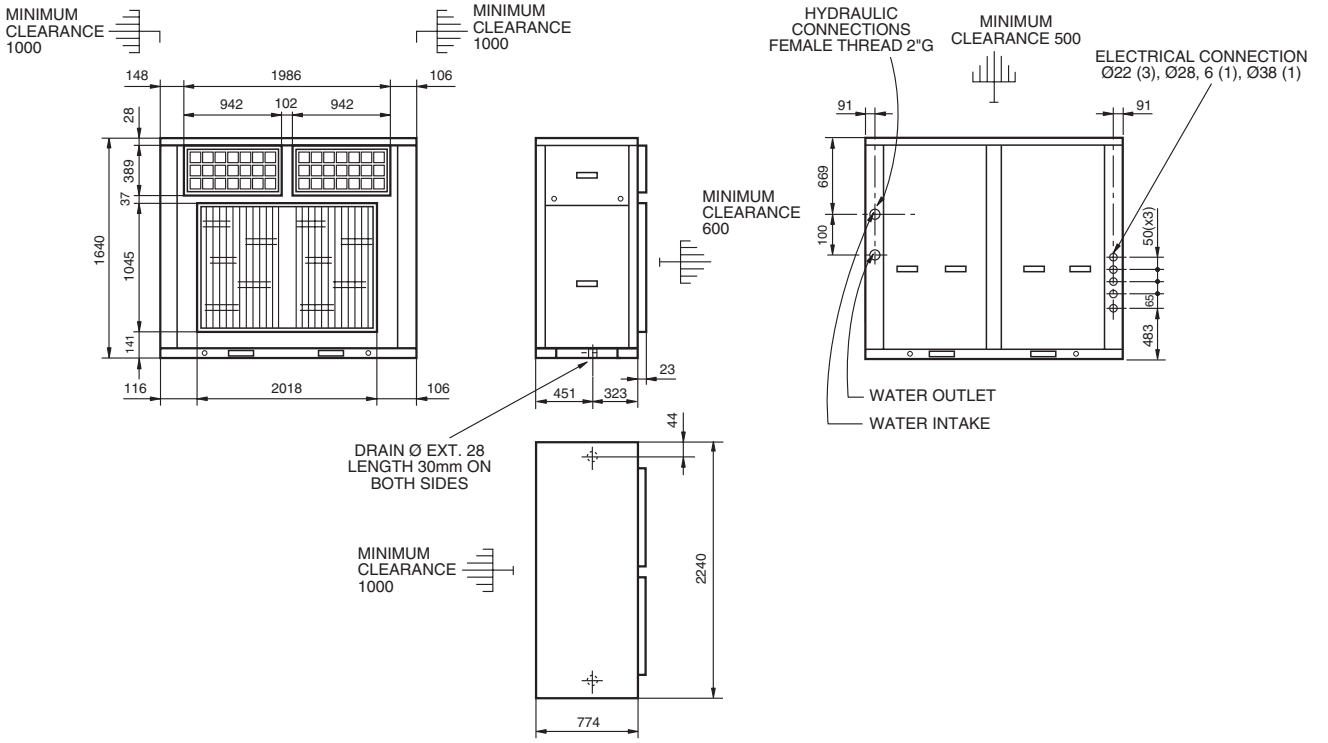
Winter cycle diagram for YLCC-H



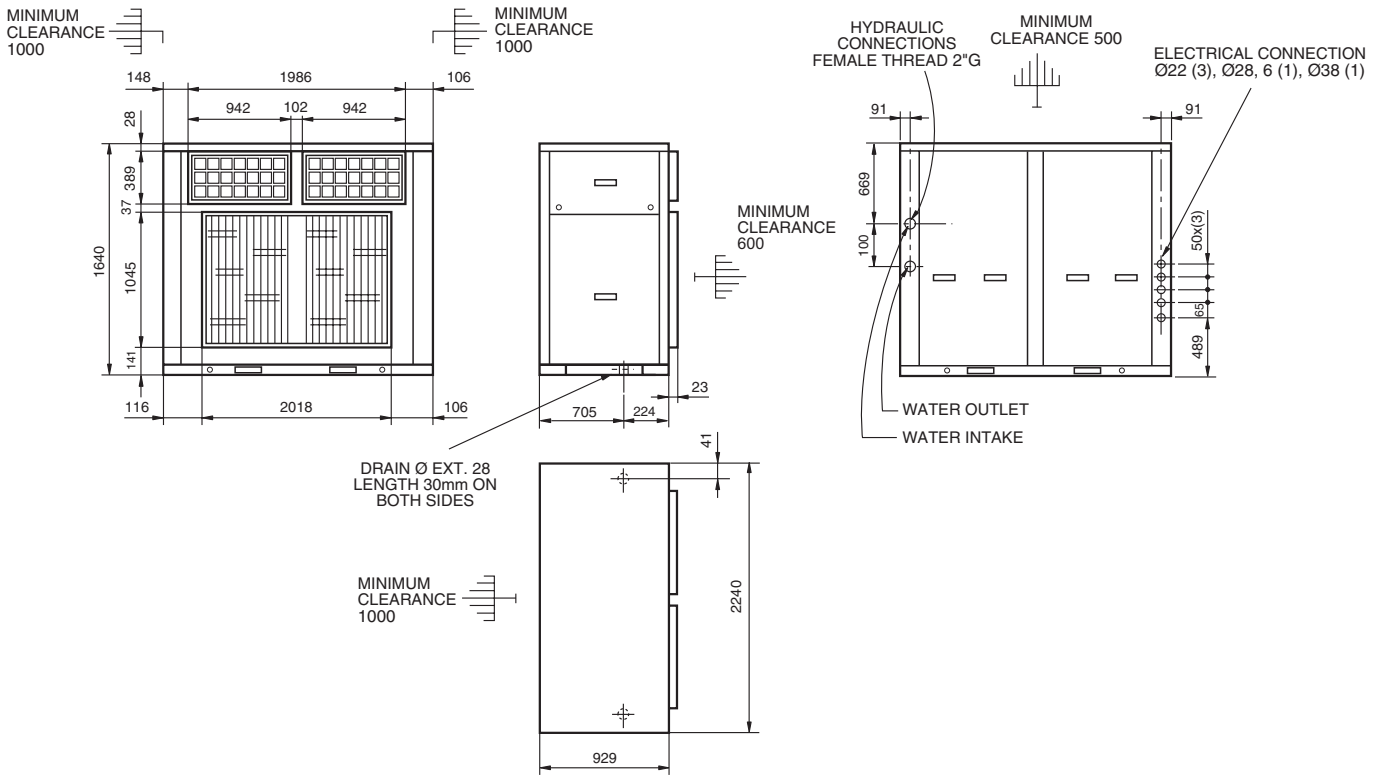
The units are made up of two circuits, with common water connections.

General dimensions mm.

YLCC and YLCC-H 42

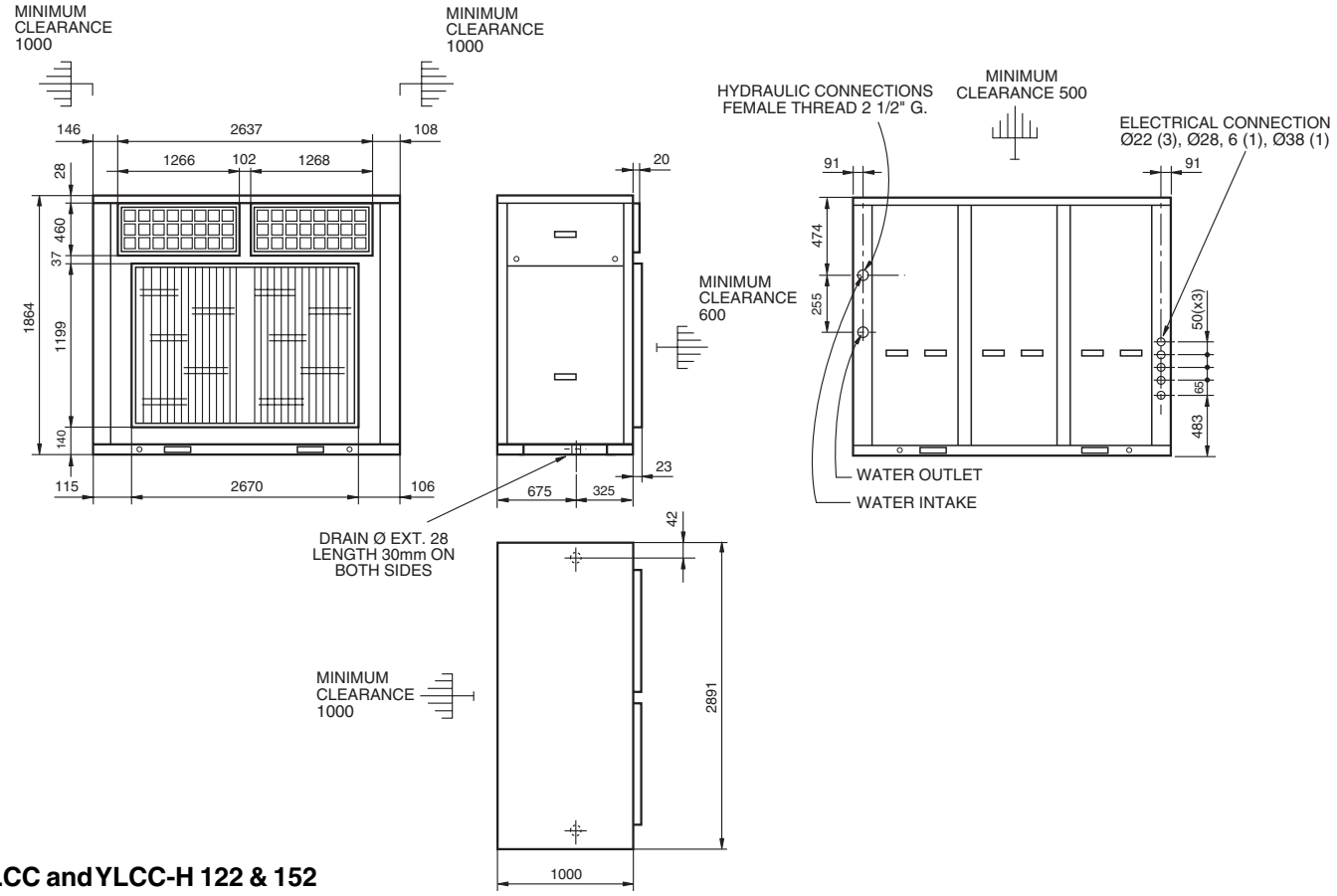


YLCC and YLCC-H 62

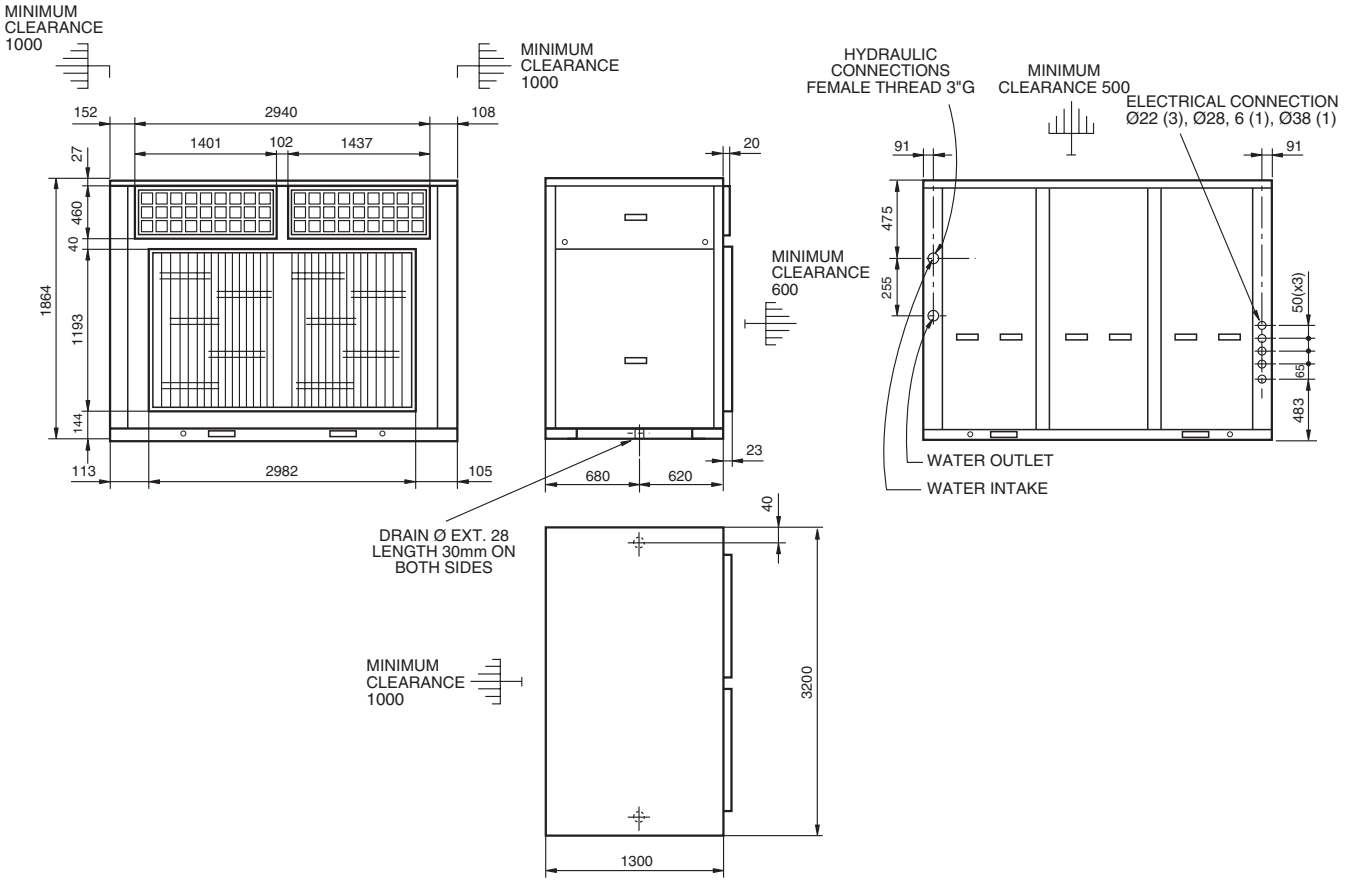


General dimensions mm.

YLCC and YLCC-H 82 & 102

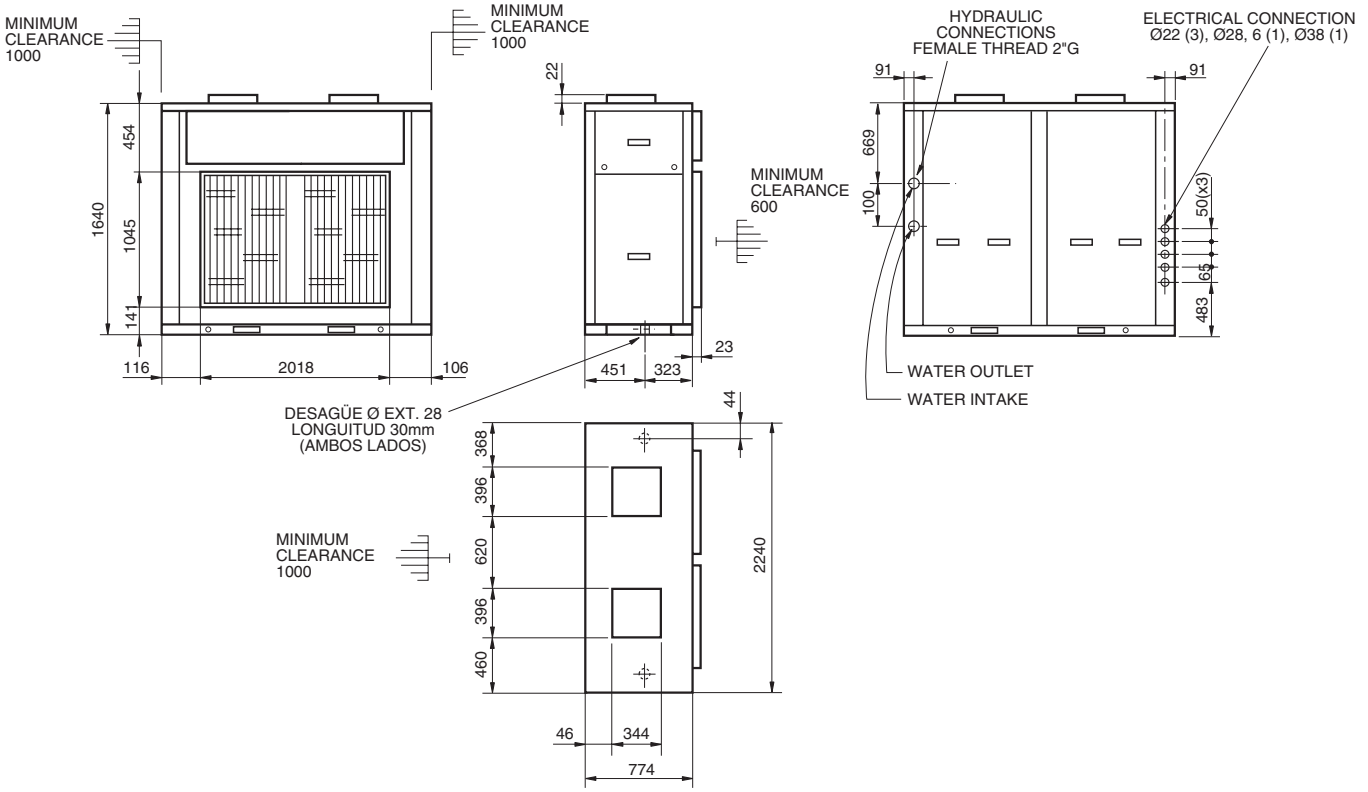


YLCC and YLCC-H 122 & 152

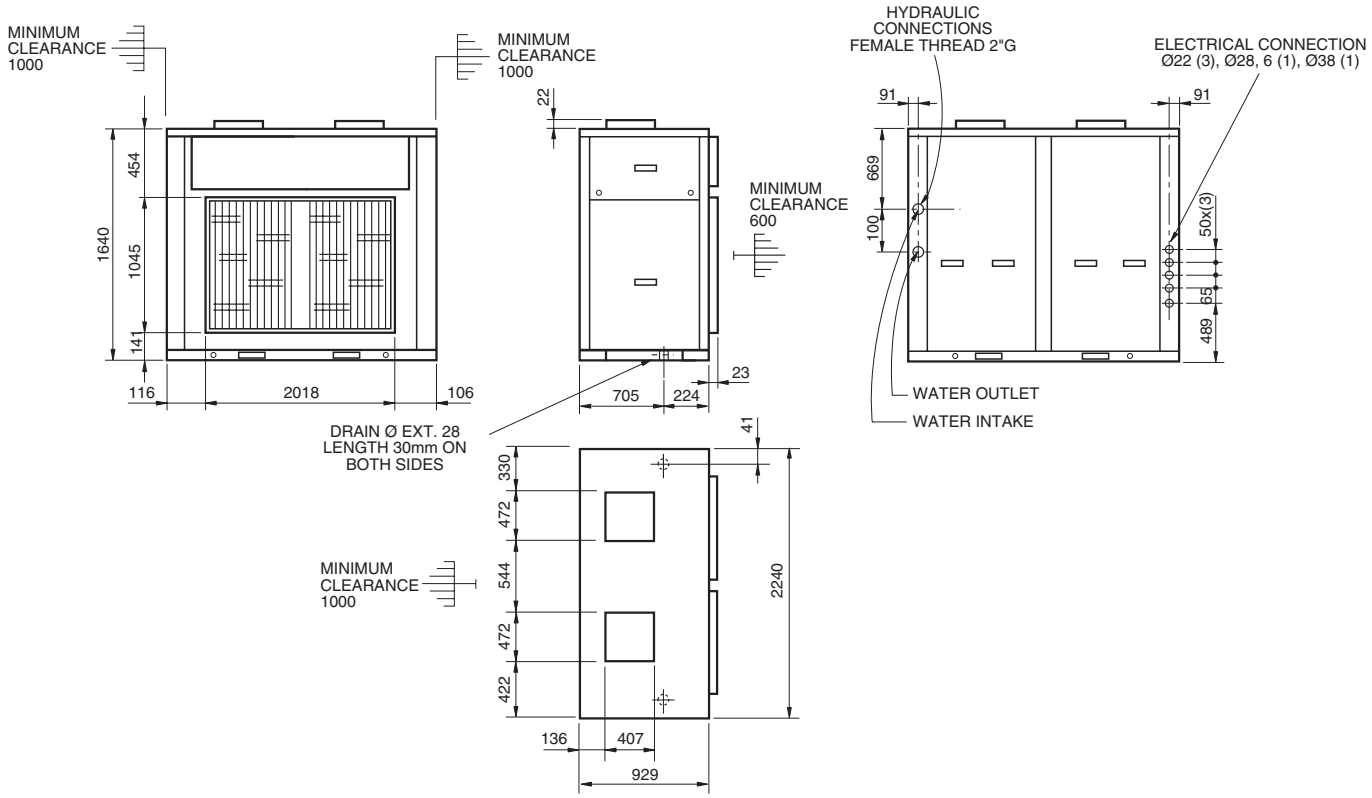


General dimensions mm.

YLCC and YLCC-H 42V

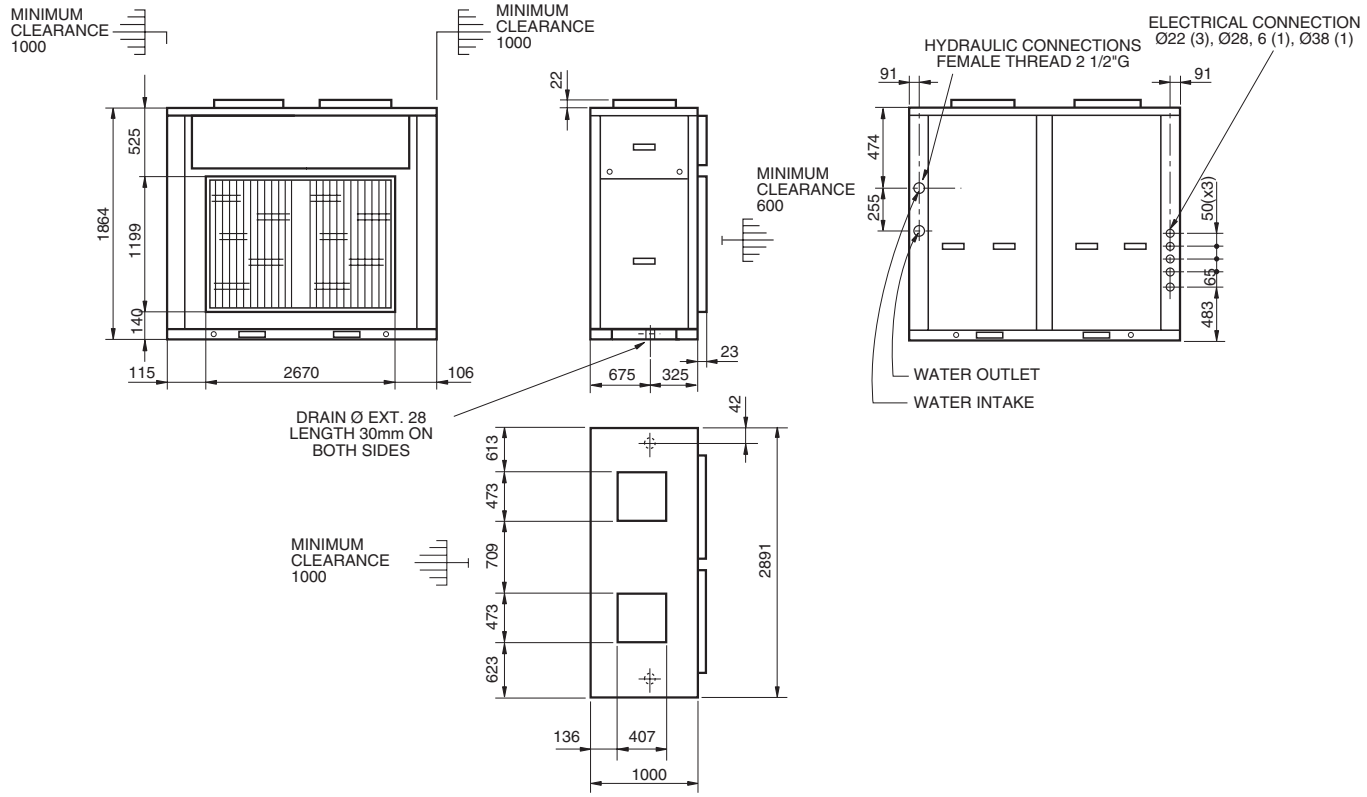


YLCC and YLCC-H 62V

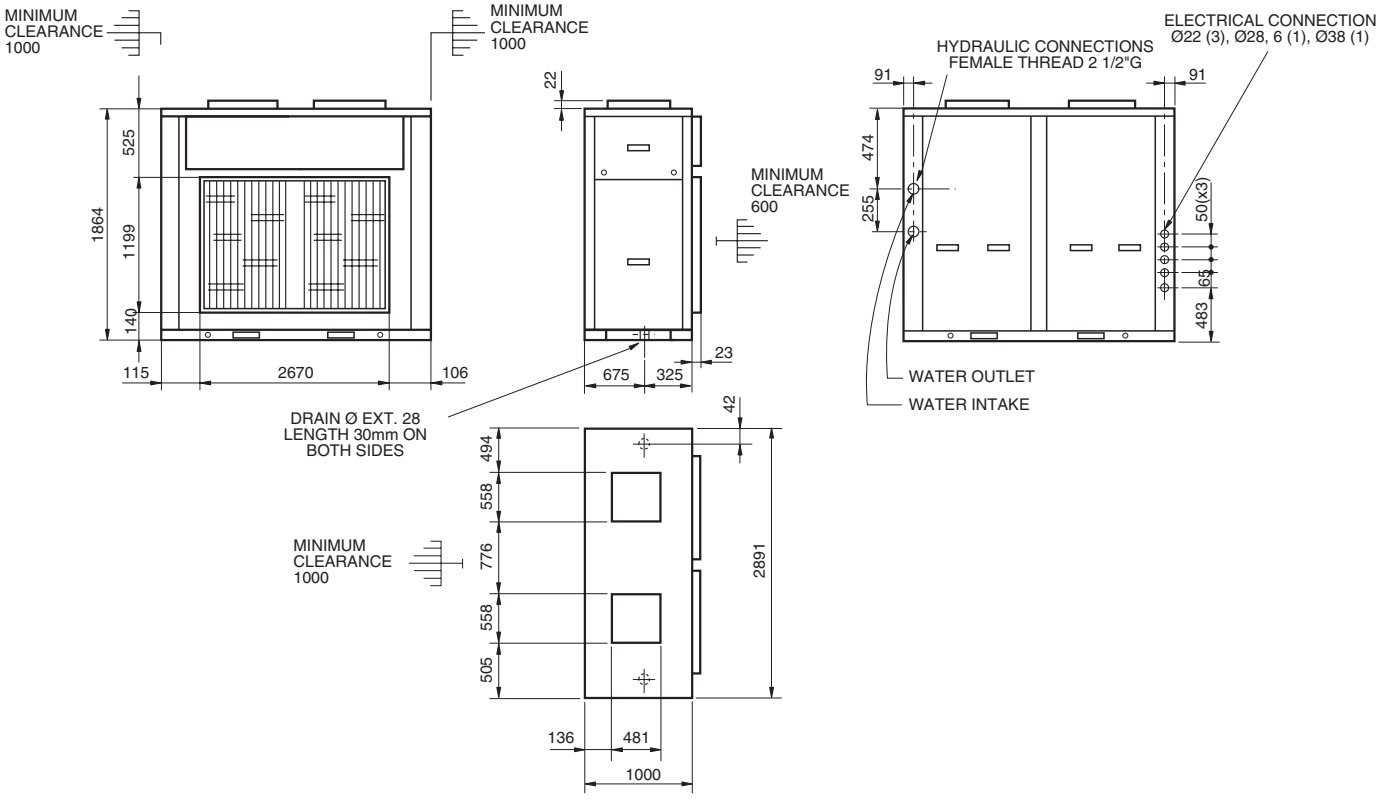


General dimensions mm.

YLCC and YLCC-H 82V

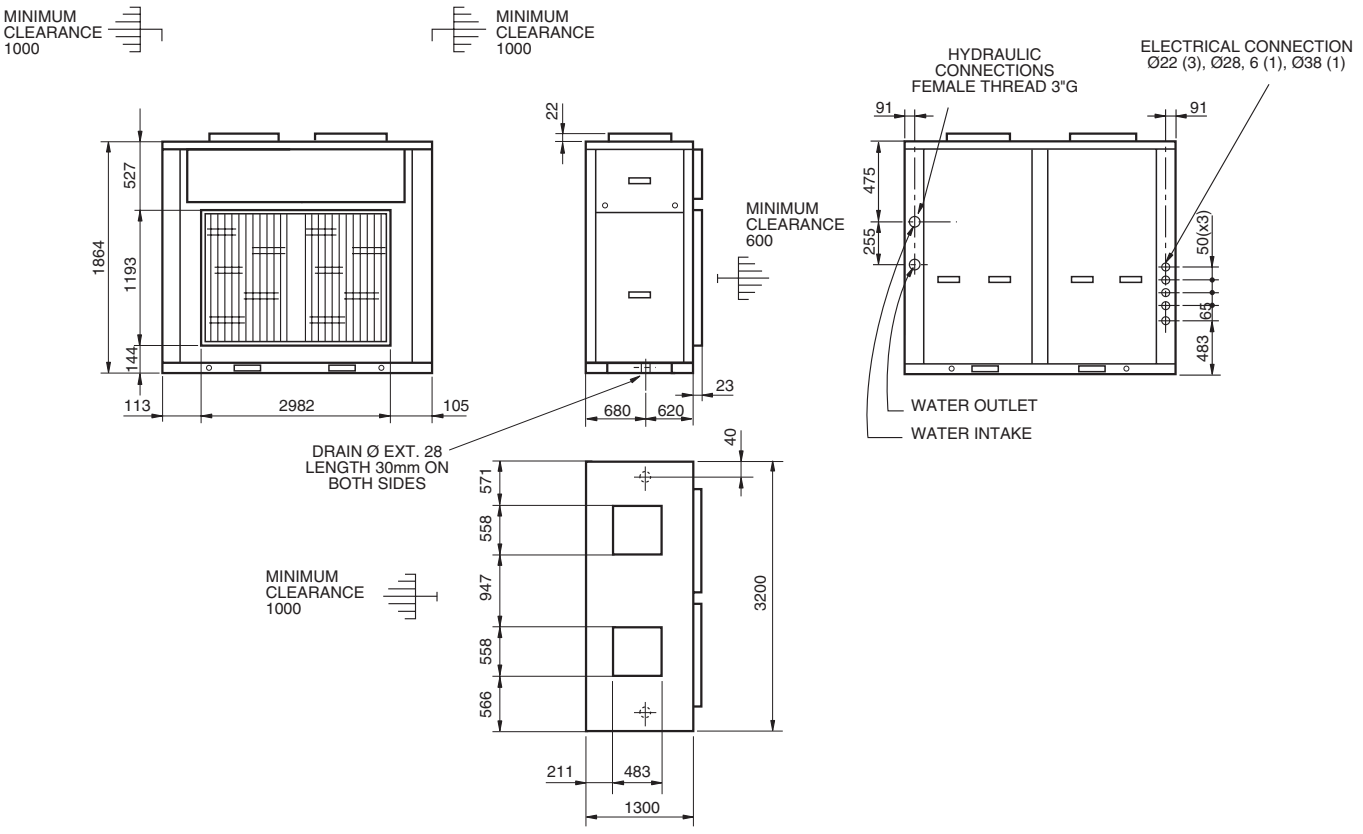


YLCC and YLCC-H 102V

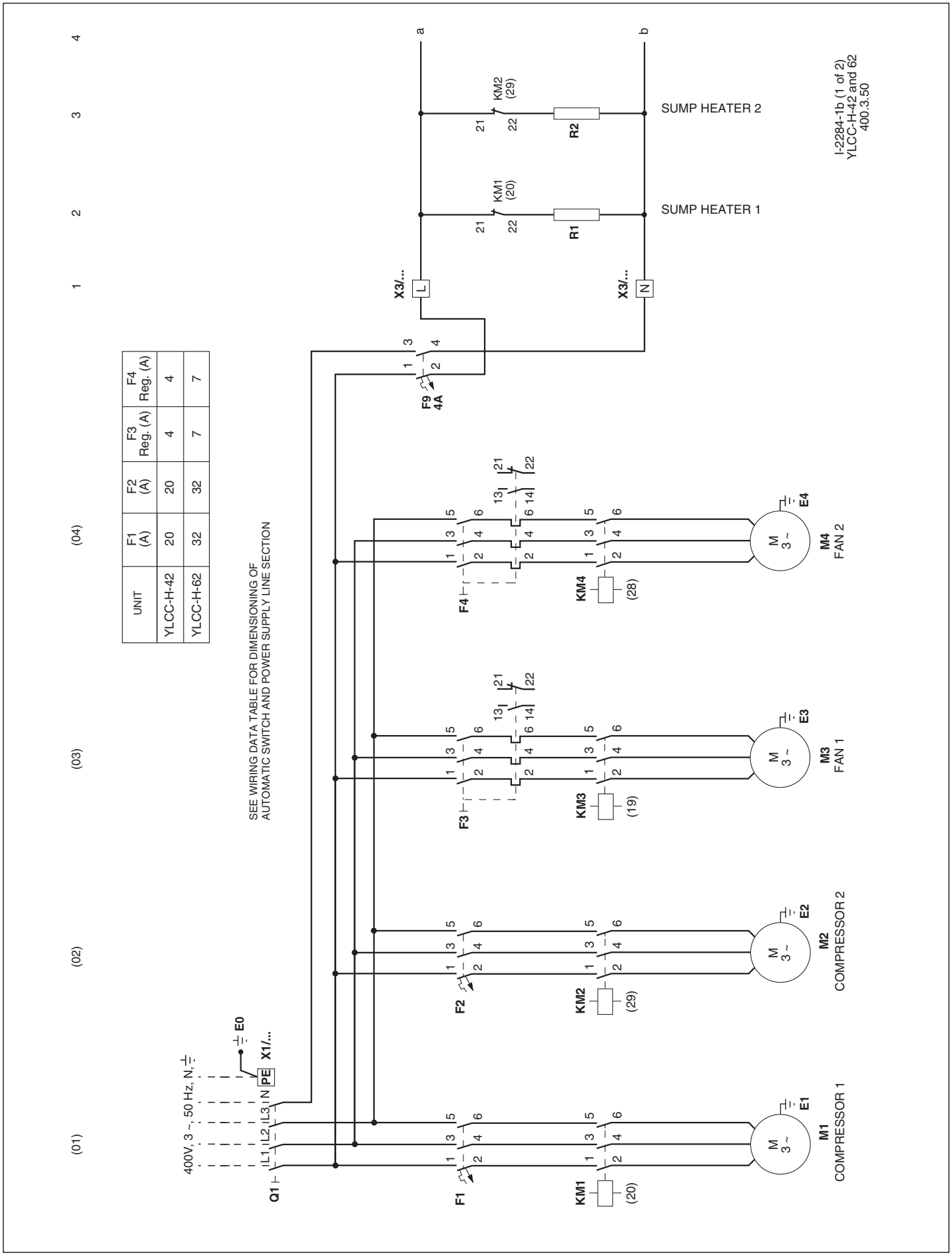


General dimensions mm.

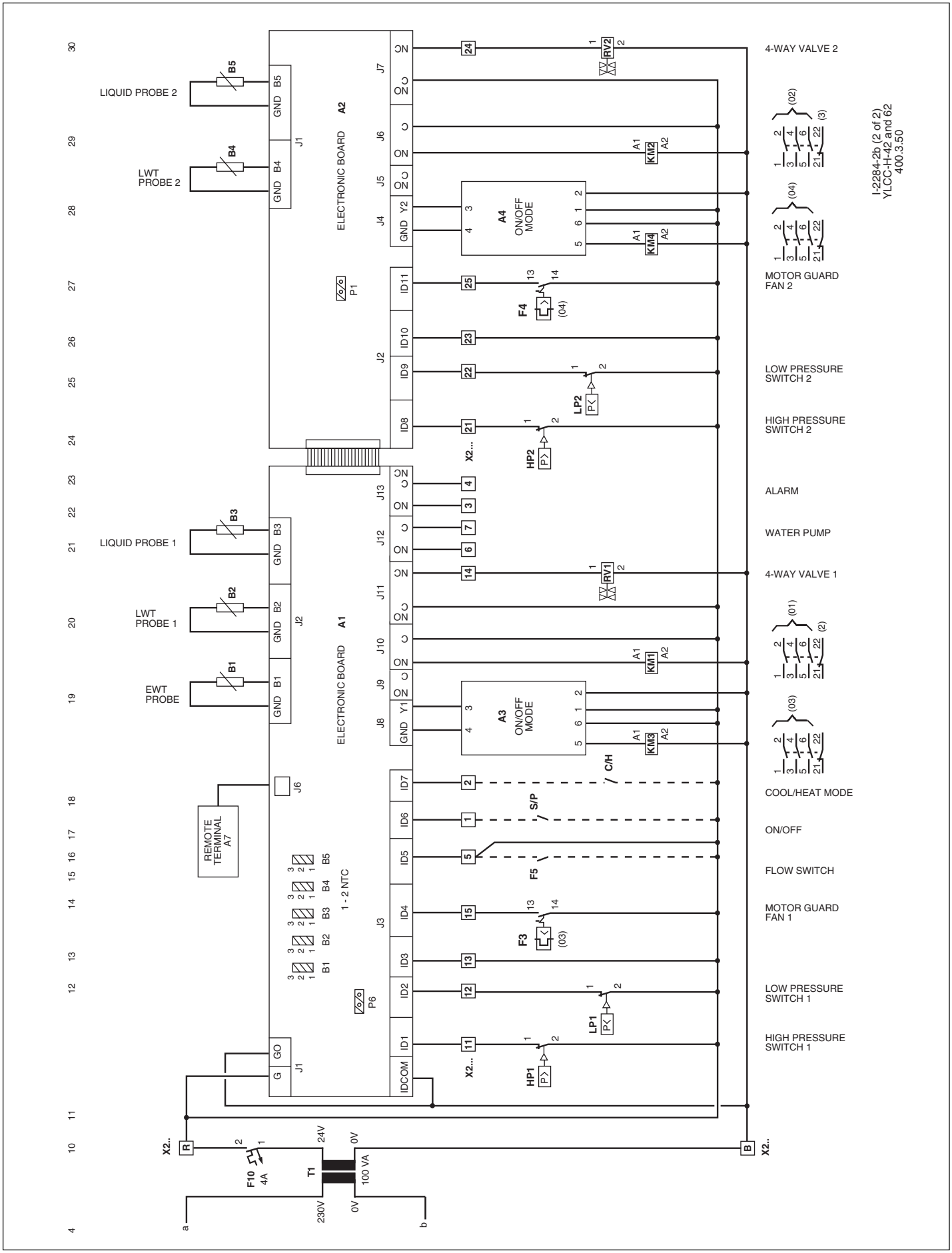
YLCC and YLCC-H 122V & 152V



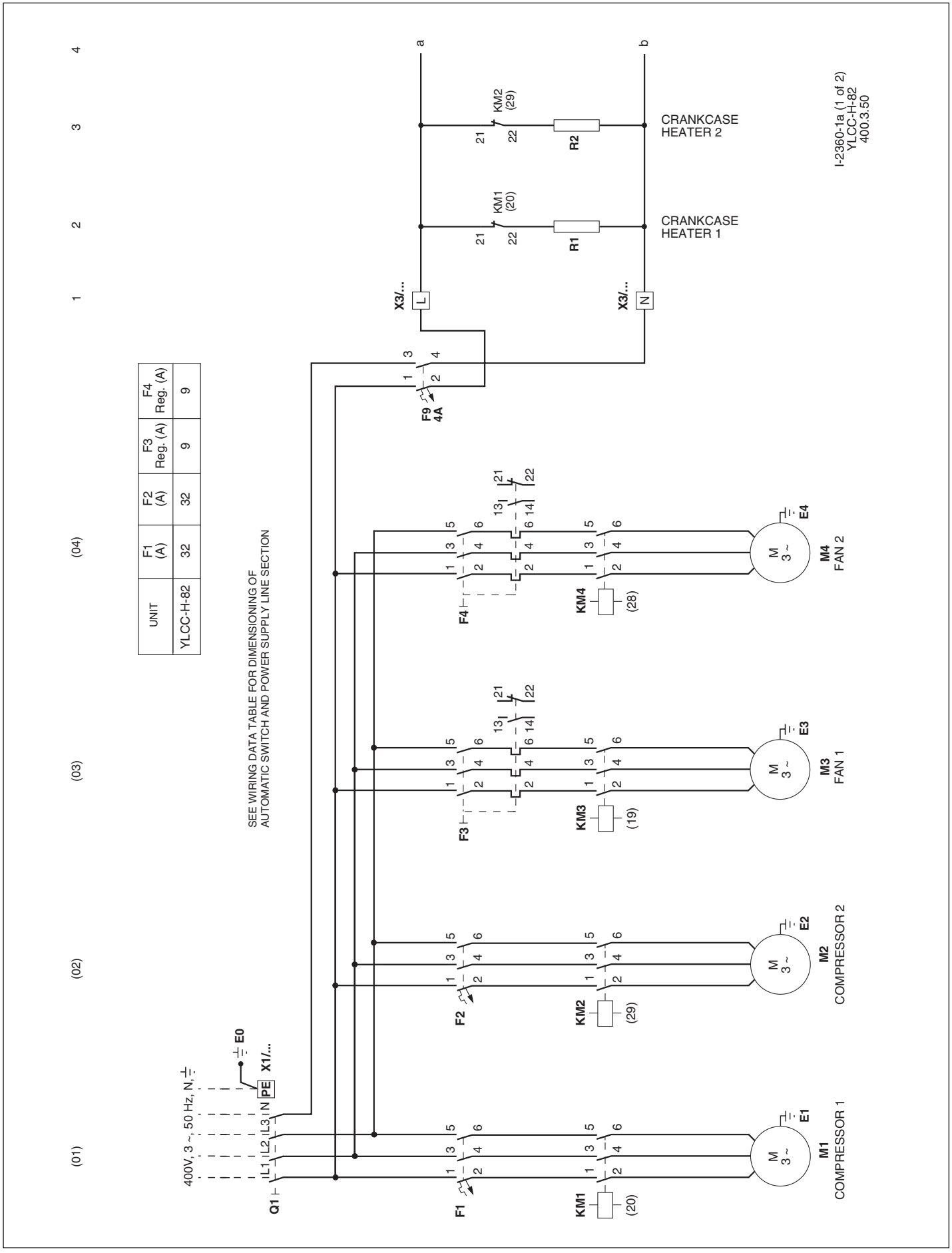
Wiring diagram, YLCC-H - 42 and 62, 400.3.50 (1 of 2)



Wiring diagram, YLCC-H - 42 and 62, 400.3.50 (2 of 2)

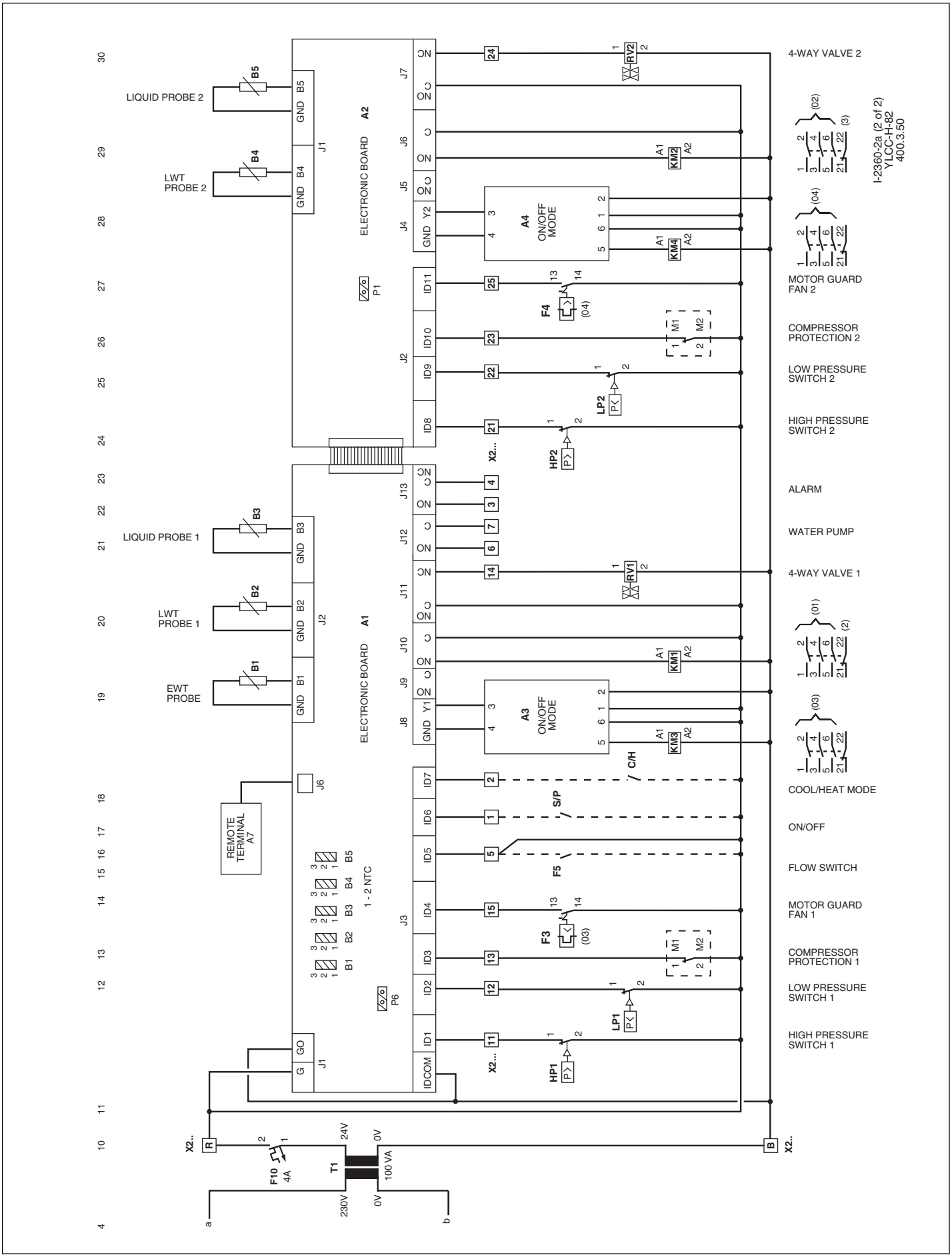


Wiring diagram, YLCC-H - 82, 400.3.50 (1 of 2)

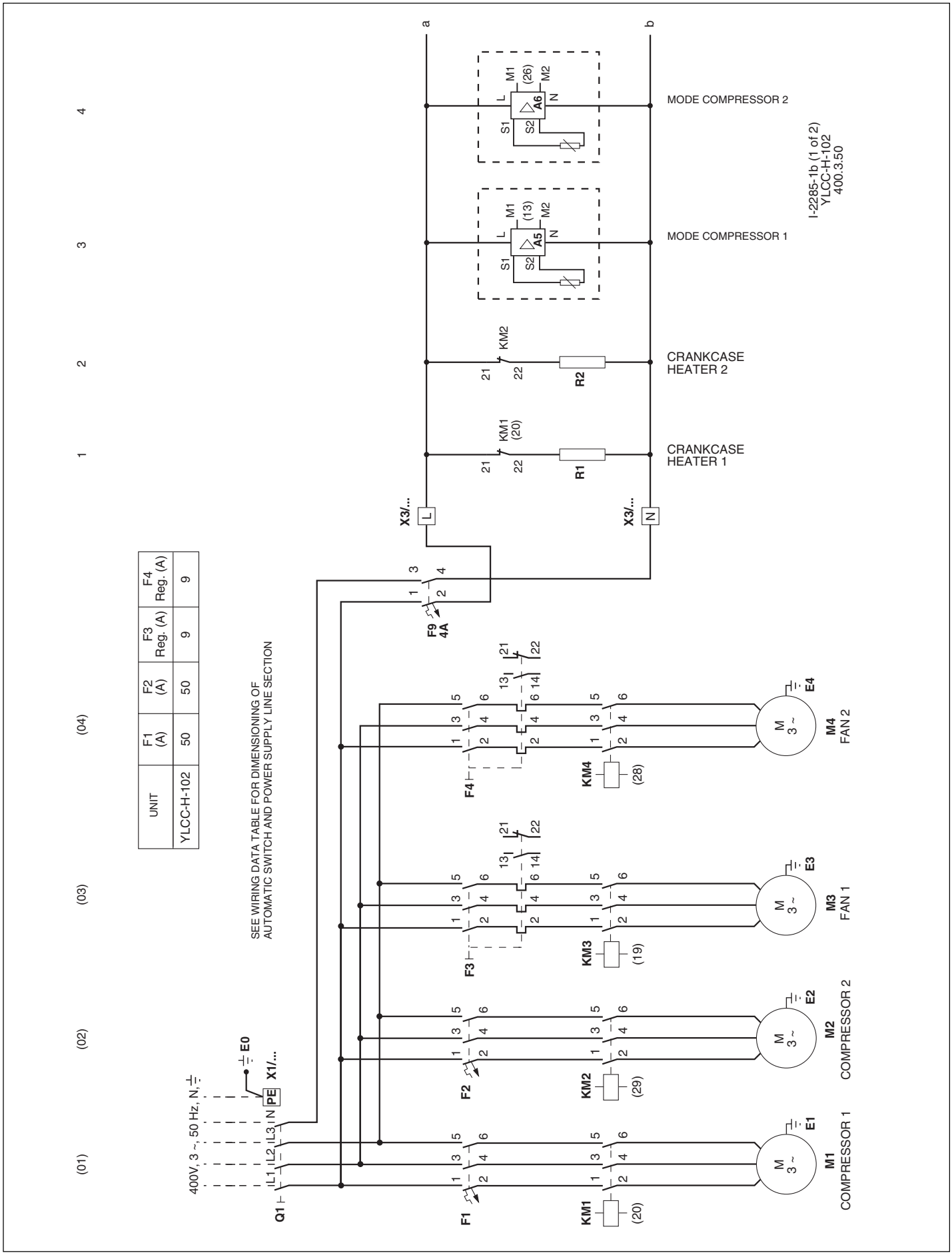


UNIT	F1 (A)	F2 (A)	F3 Reg. (A)	F4 Reg. (A)
YLCC-H-82	32	32	9	9

Wiring diagram, YLCC-H - 82, 400.3.50 (2 of 2)

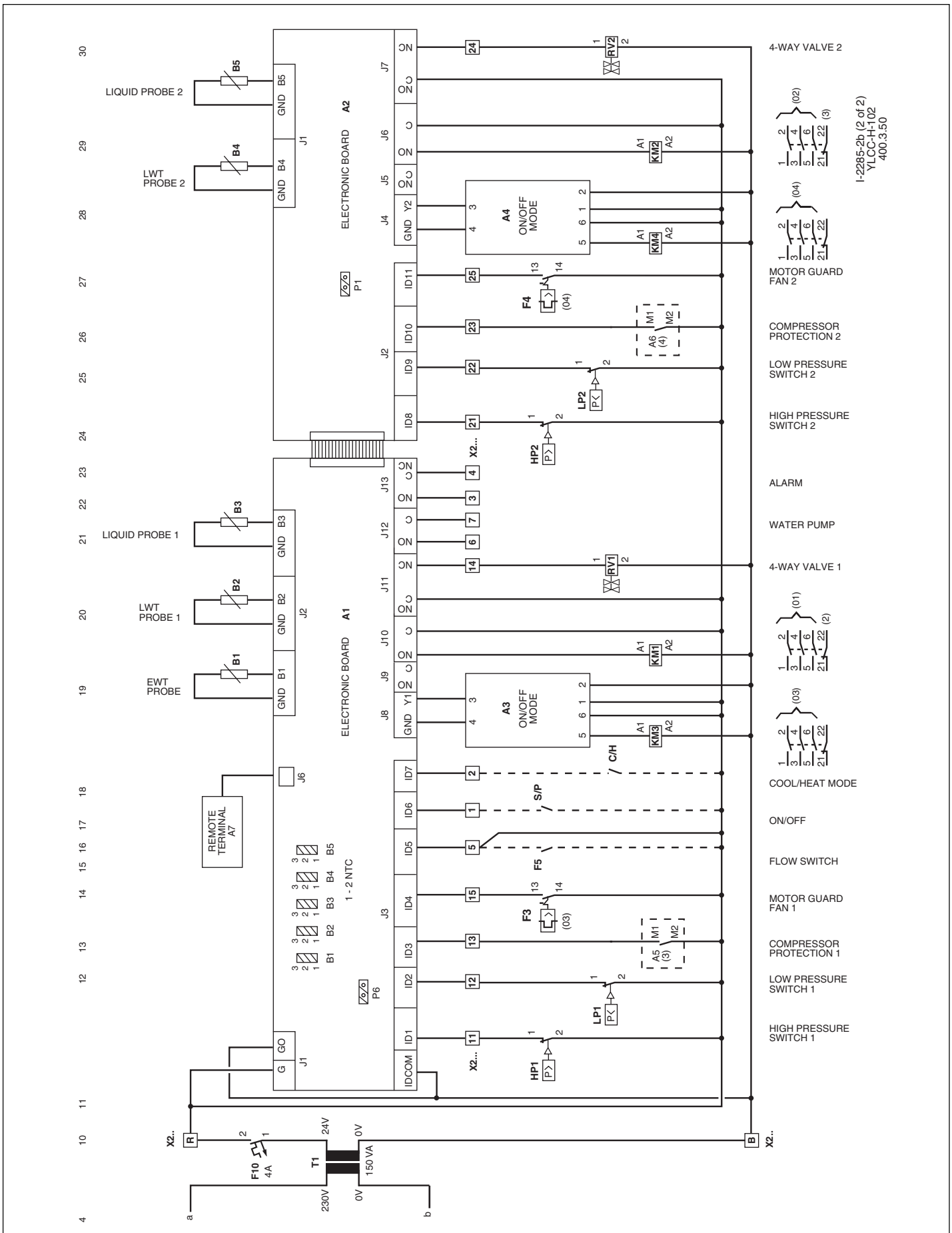


Wiring diagram, YLCC-H - 102, 400.3.50 (1 of 2)

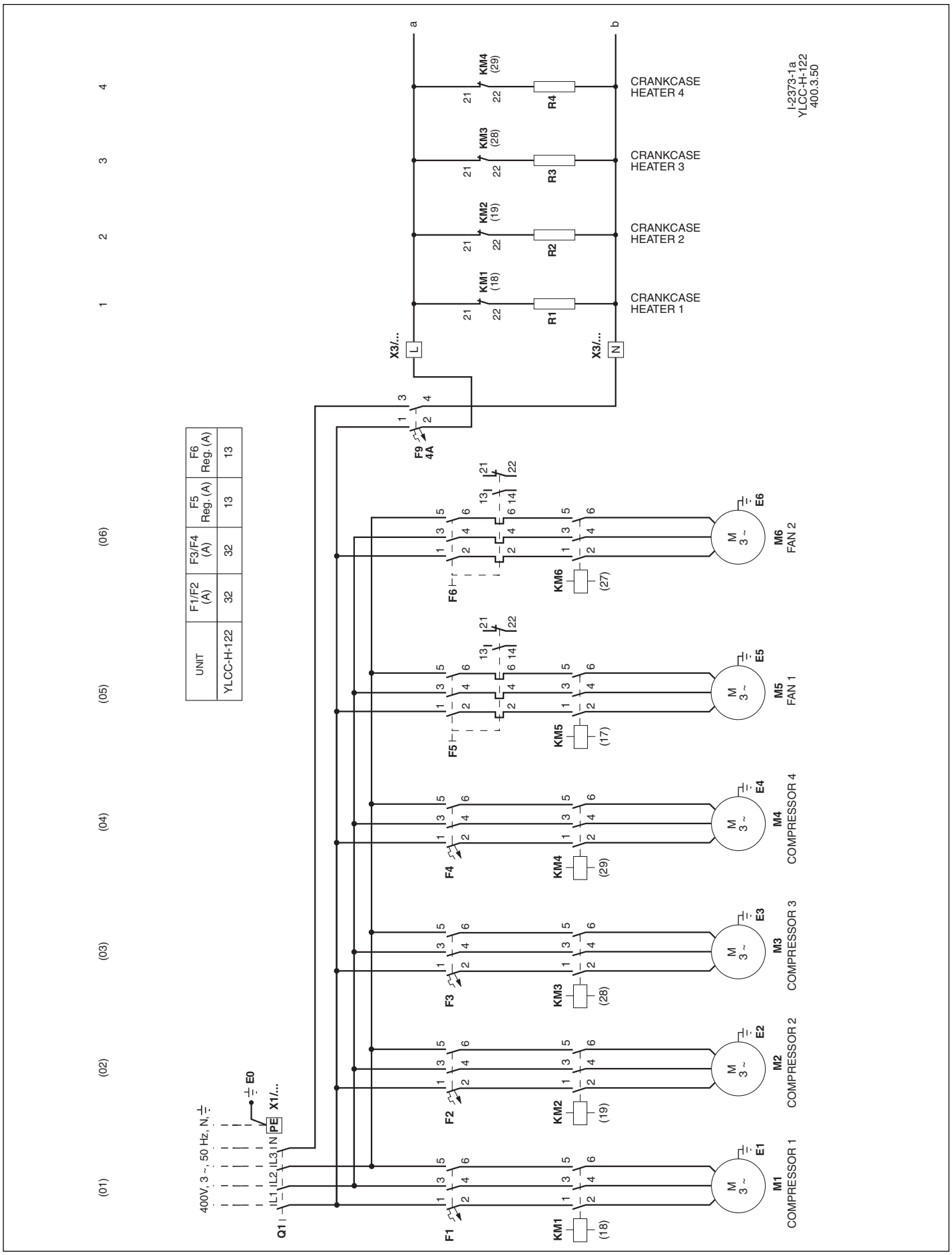


UNIT	F1 (A)	F2 (A)	F3 Reg. (A)	F4 Reg. (A)
YLCC-H-102	50	50	9	9

Wiring diagram, YLCC-H - 102, 400.3.50 (2 of 2)

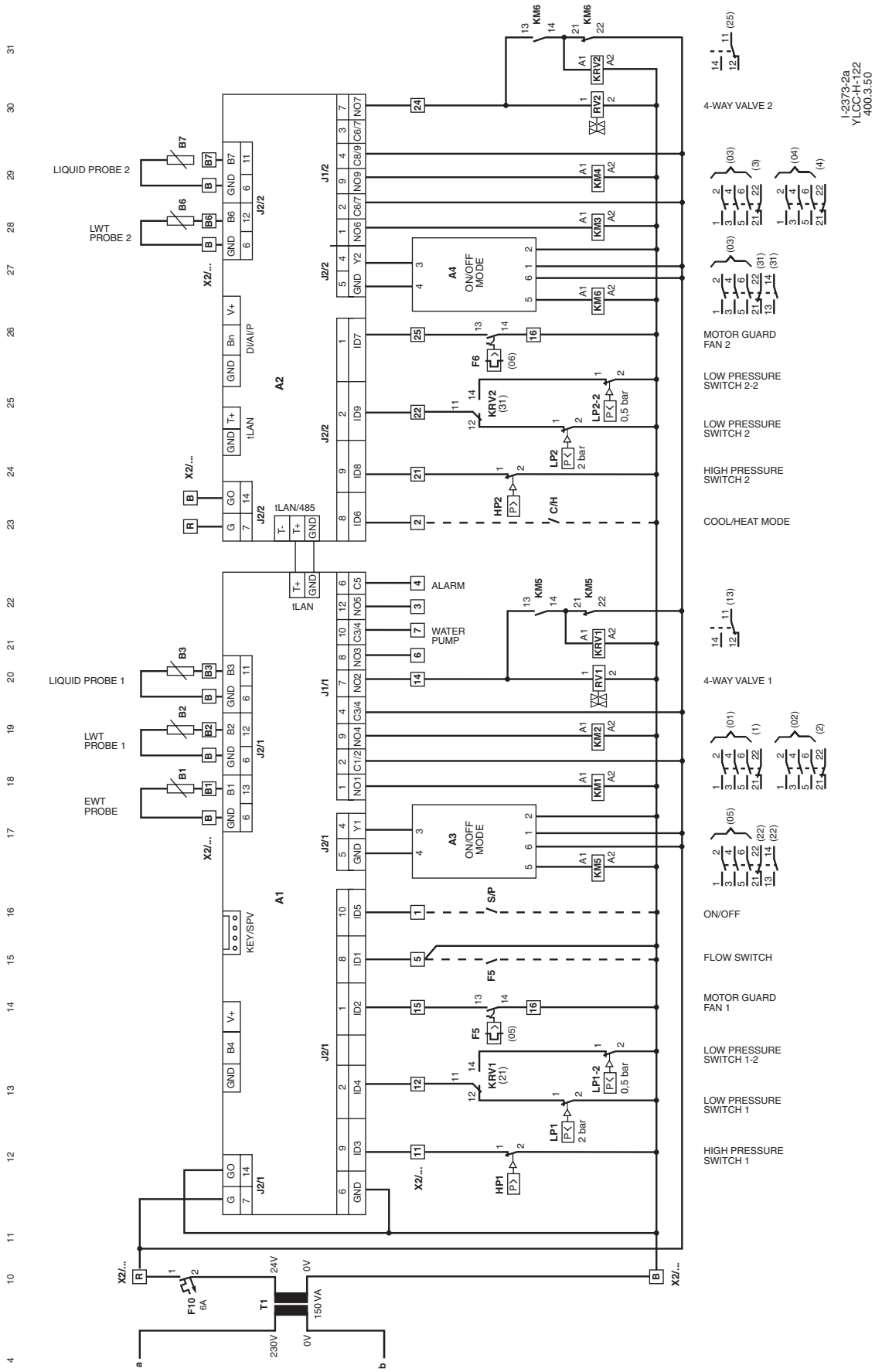


Wiring diagram, YLCC-H - 122, 400.3.50 (1 of 2)

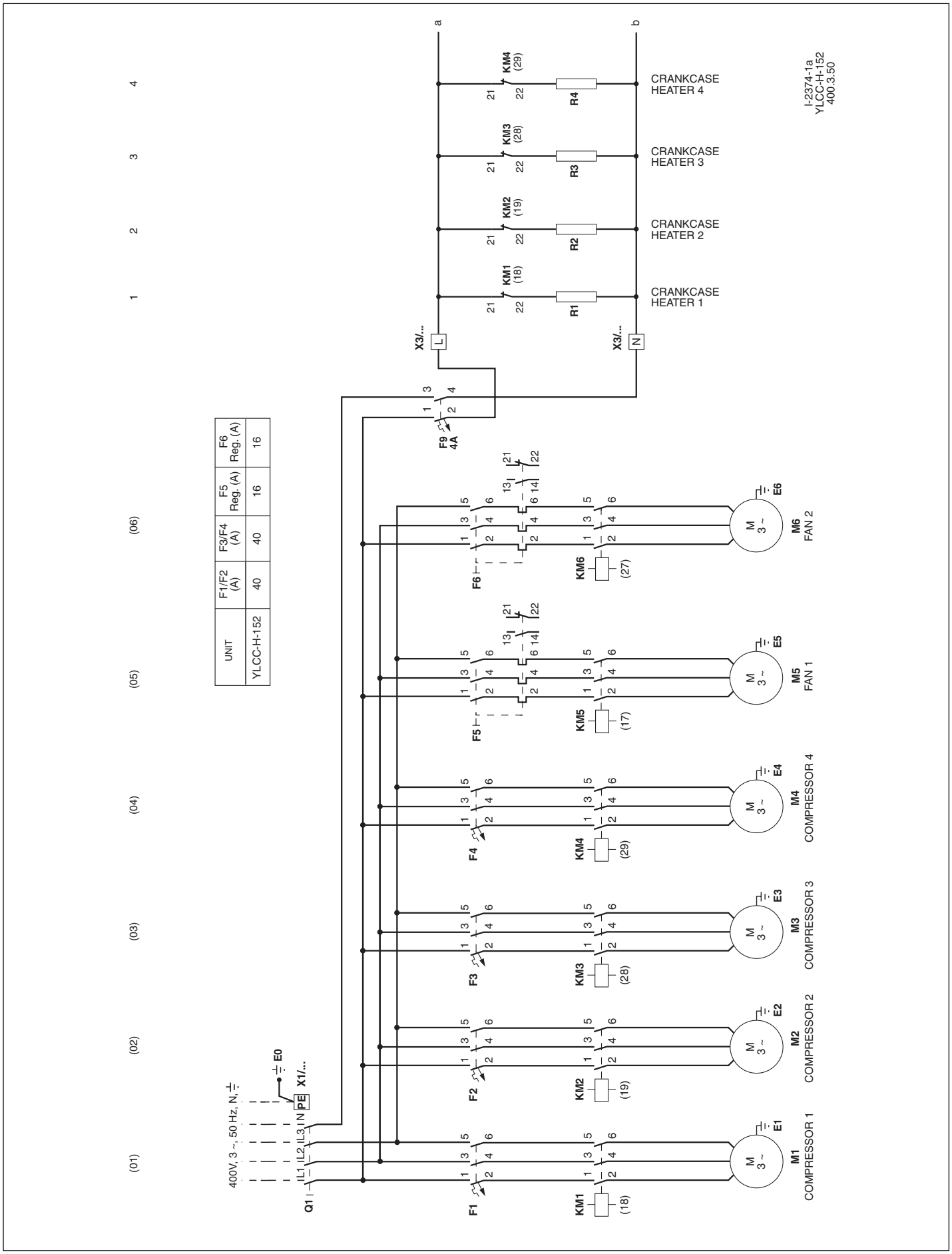


UNIT	F1/F2 (A)	F3/F4 (A)	F5 Reg. (A)	F6 Reg. (A)
YLCC-H-122	32	32	13	13

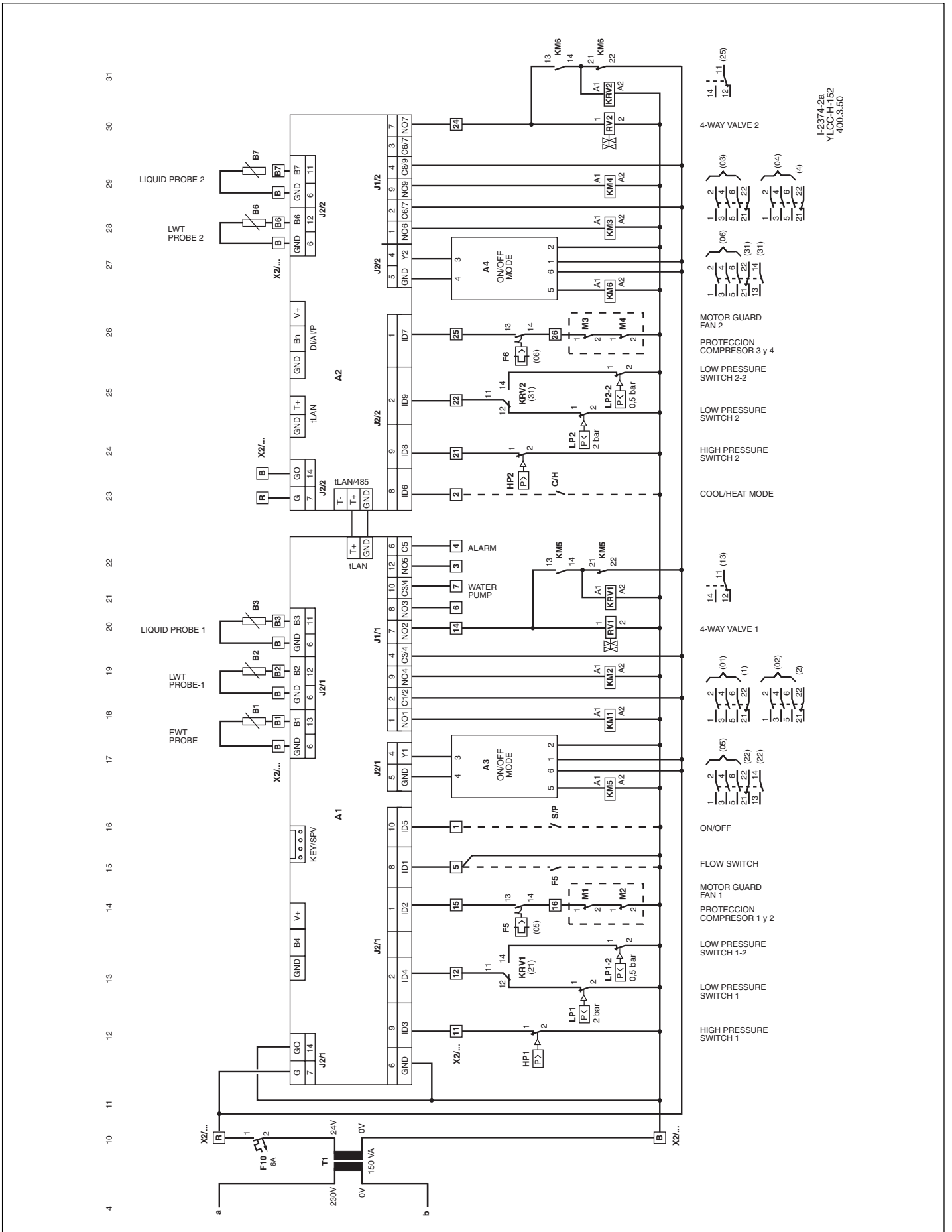
Wiring diagram, YLCC-H - 122, 400.3.50 (2 of 2)



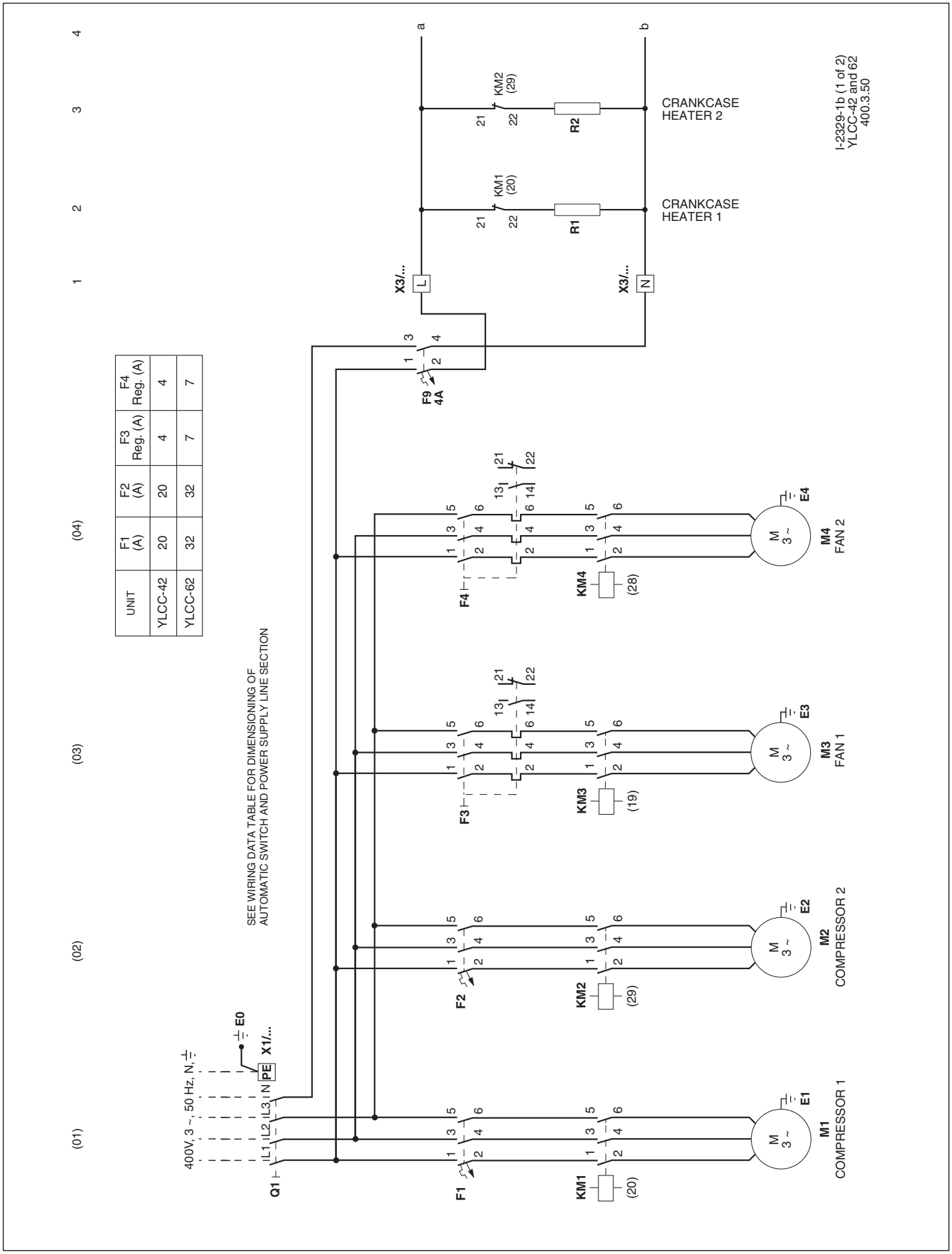
Wiring diagram, YLCC-H - 152, 400.3.50 (1 of 2)



Wiring diagram, YLCC-H - 152, 400.3.50 (2 of 2)

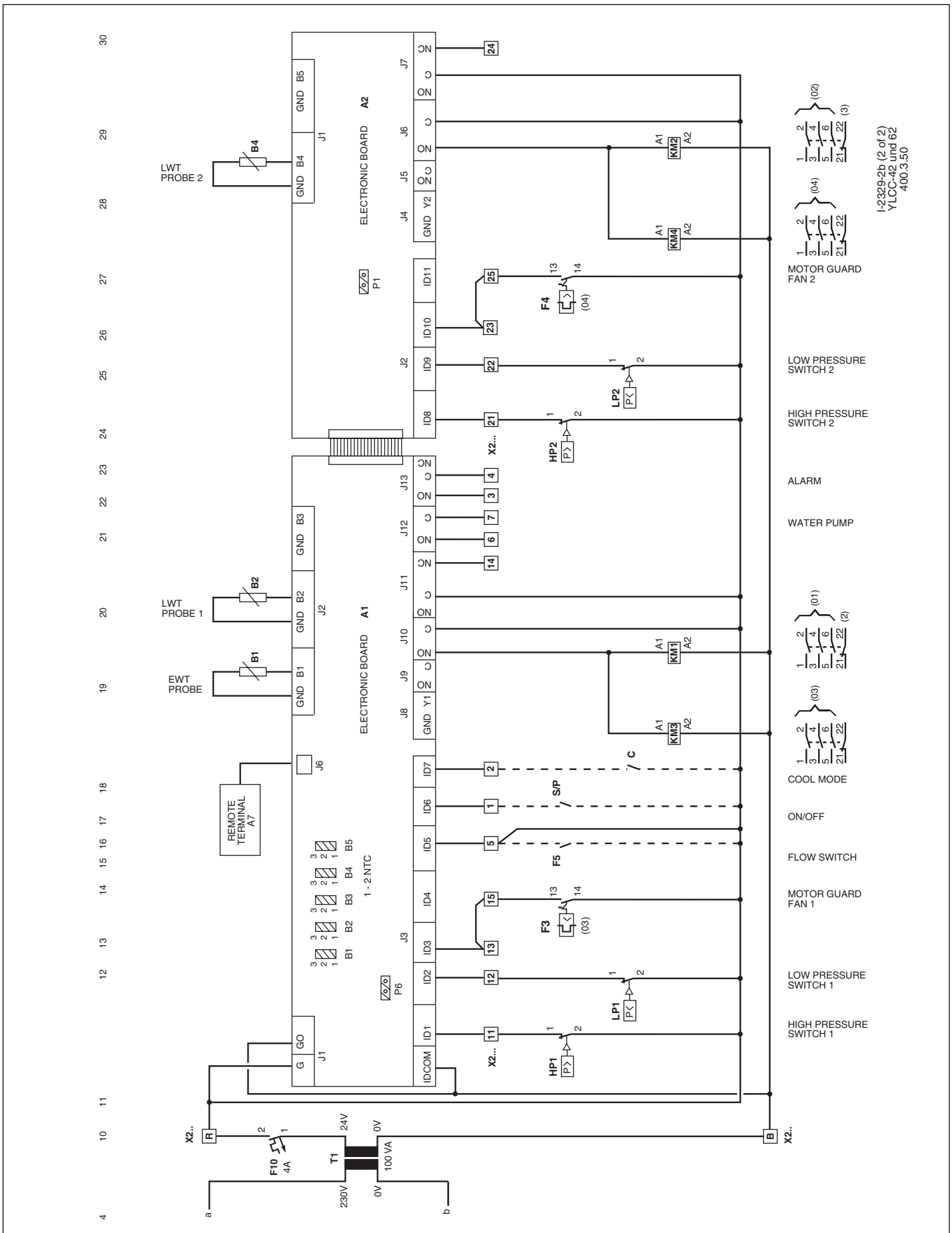


Wiring diagram, YLCC- 42 and 62, 400.3.50 (1 of 2)

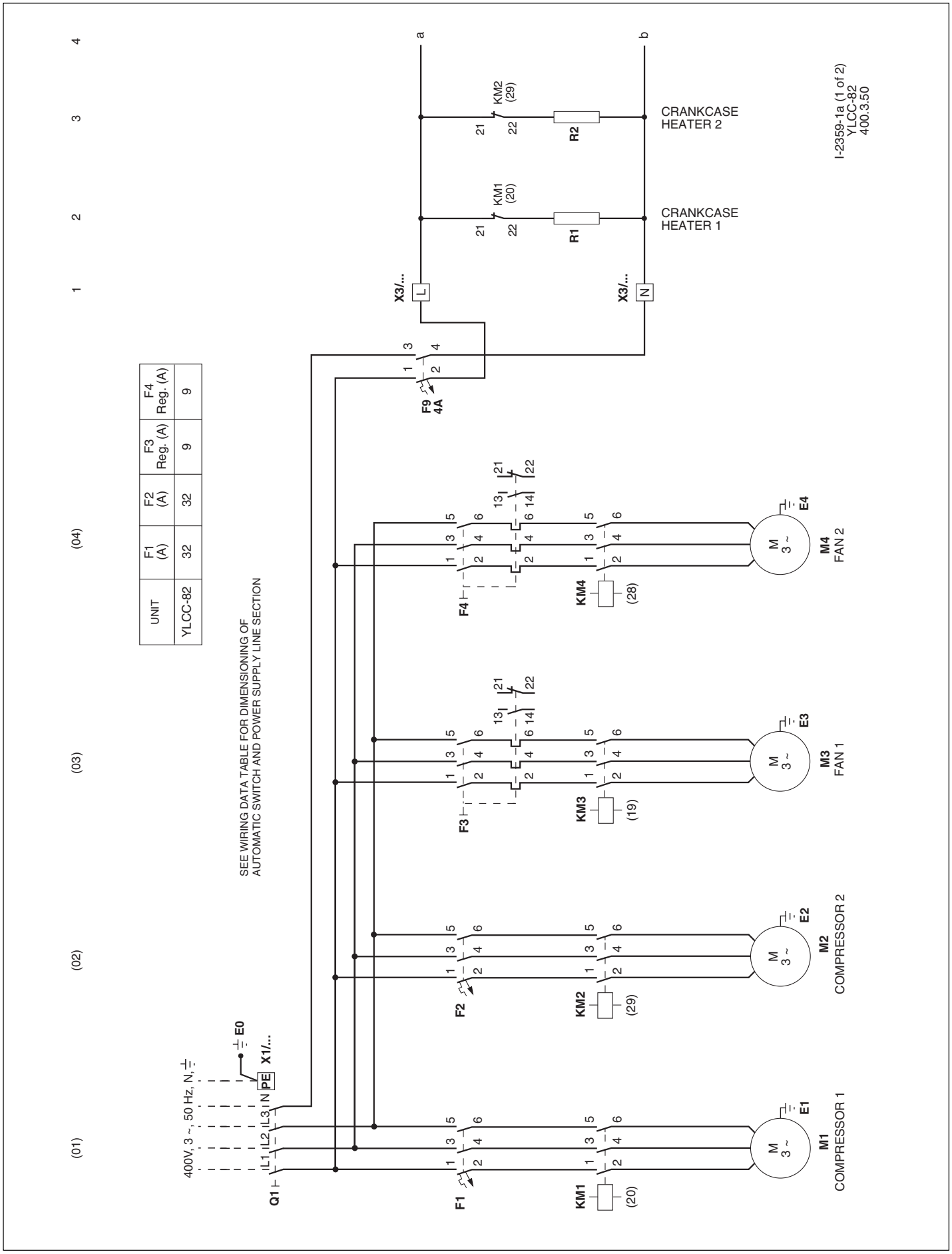


UNIT	F1 (A)	F2 (A)	F3 Reg. (A)	F4 Reg. (A)
YLCC-42	20	20	4	4
YLCC-62	32	32	7	7

Wiring diagram, YLCC- 42 and 62, 400.3.50 (2 of 2)

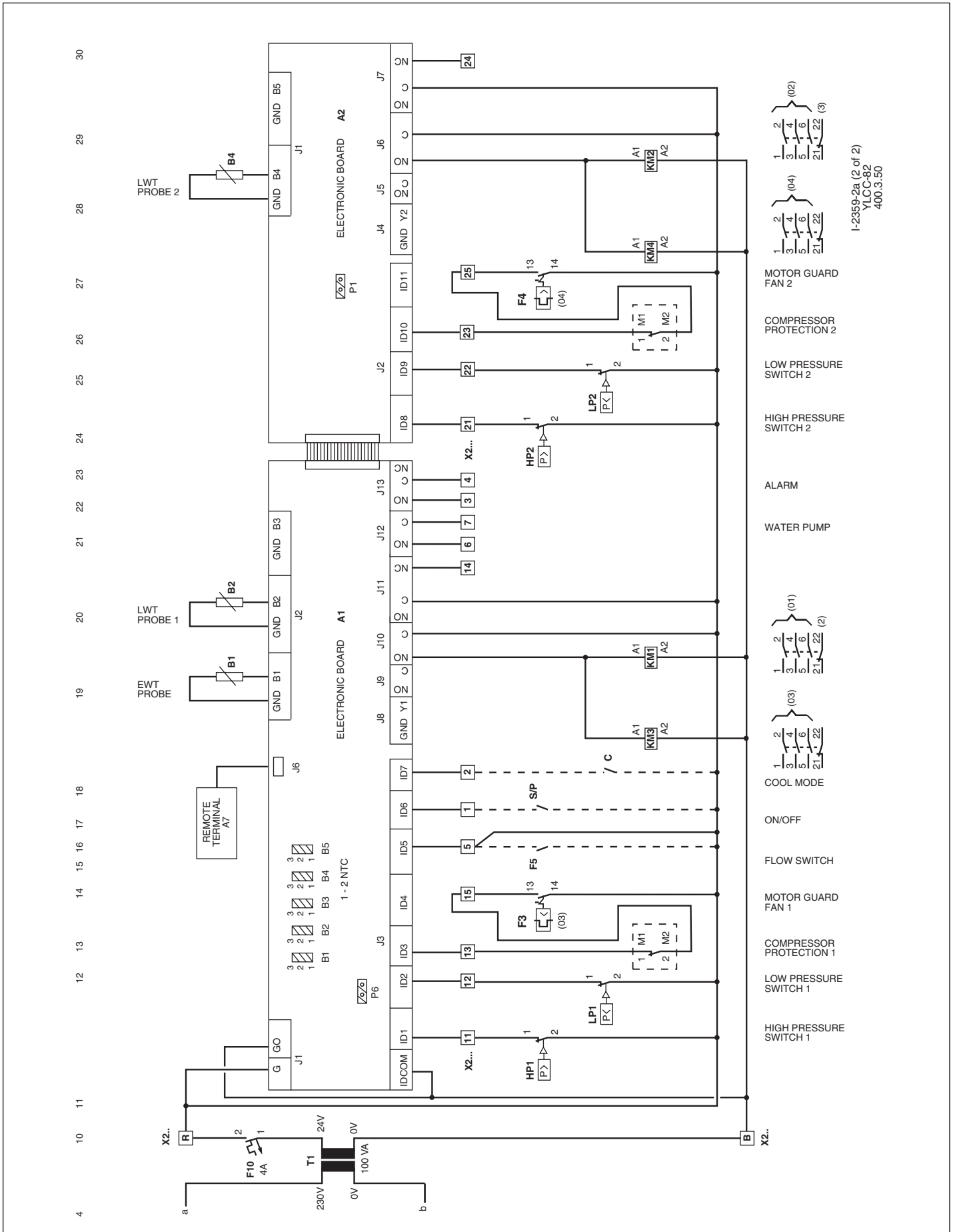


Wiring diagram, YLCC- 82, 400.3.50 (1 of 2)

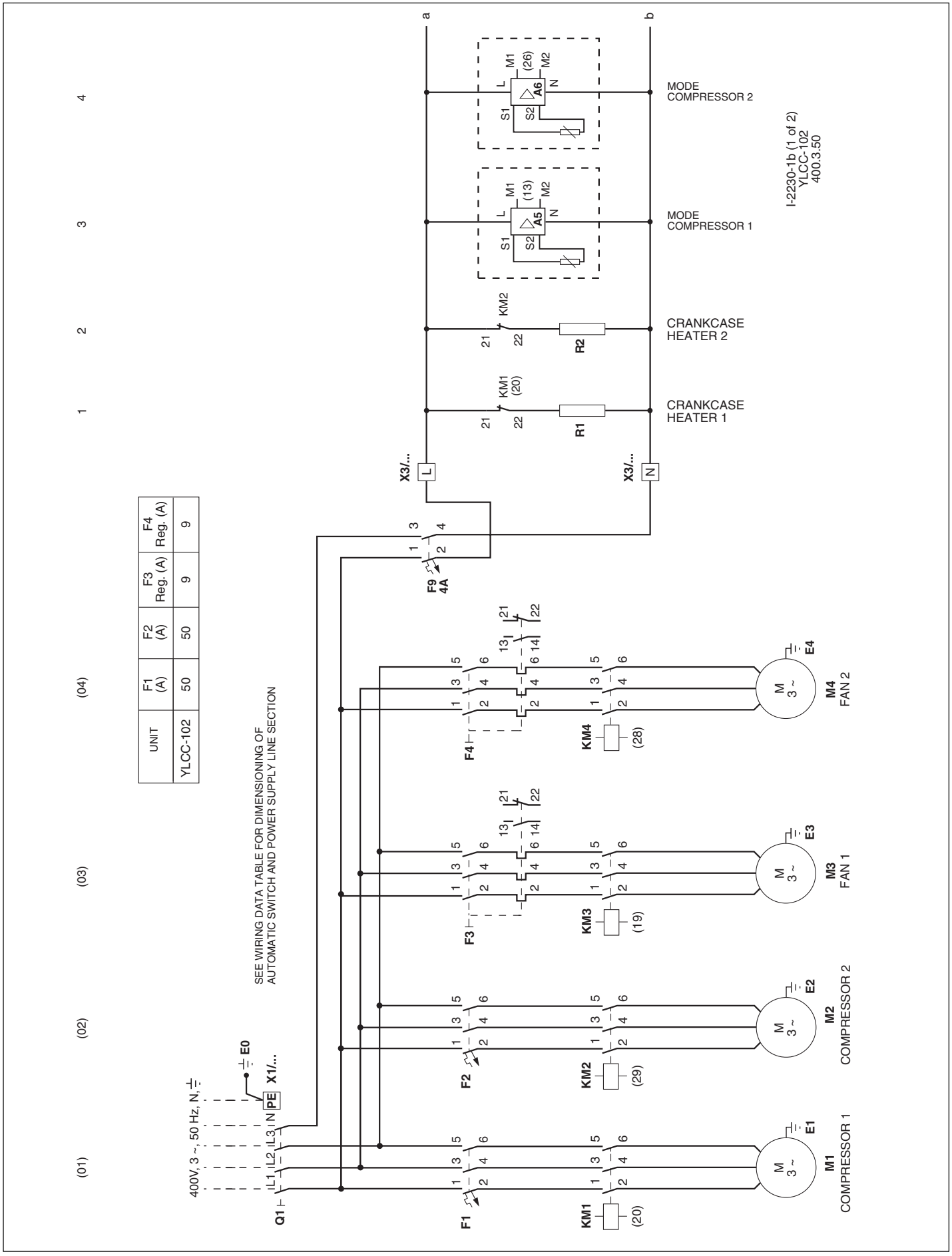


UNIT	F1 (A)	F2 (A)	F3 Reg. (A)	F4 Reg. (A)
YLCC-82	32	32	9	9

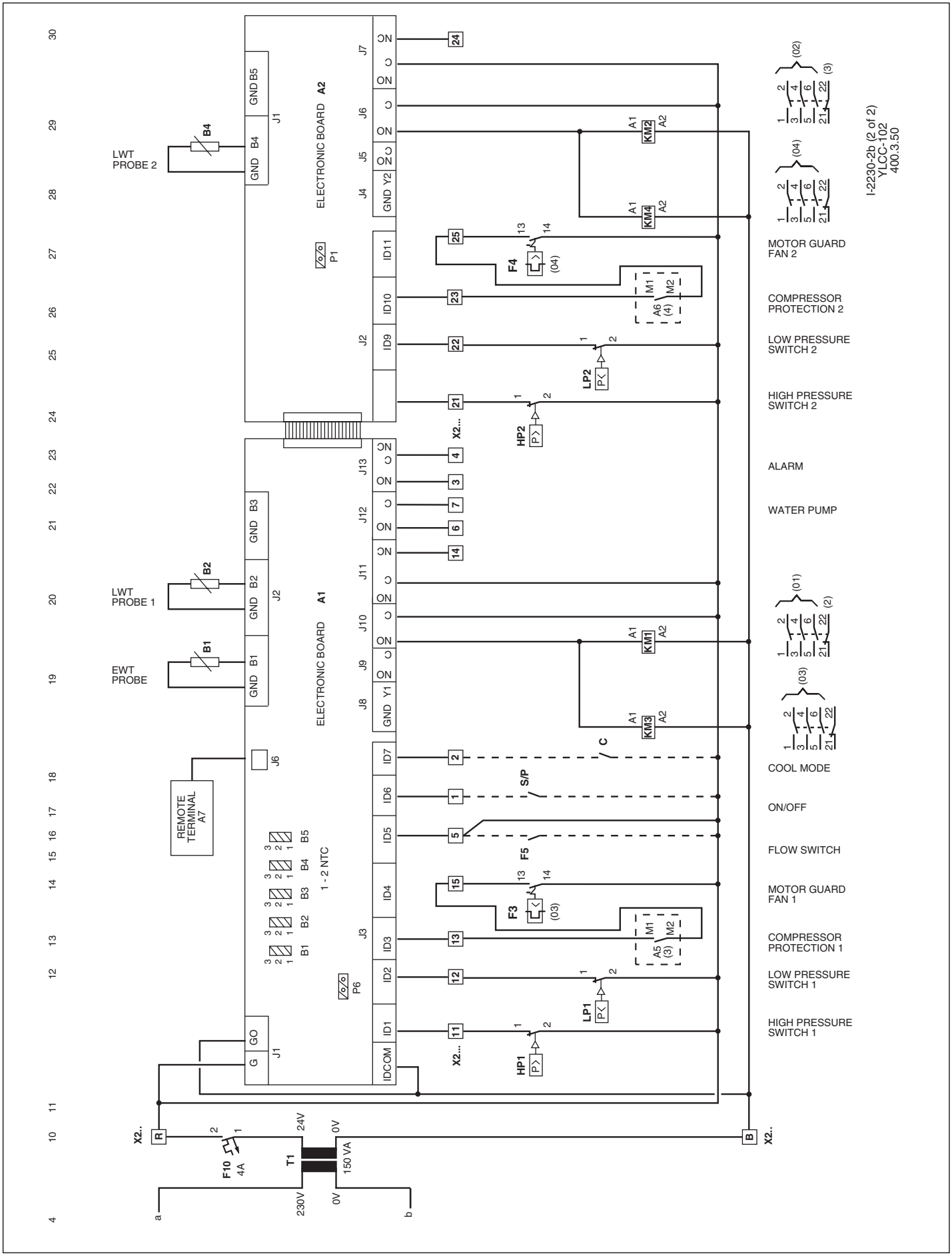
Wiring diagram, YLCC- 82, 400.3.50 (2 of 2)



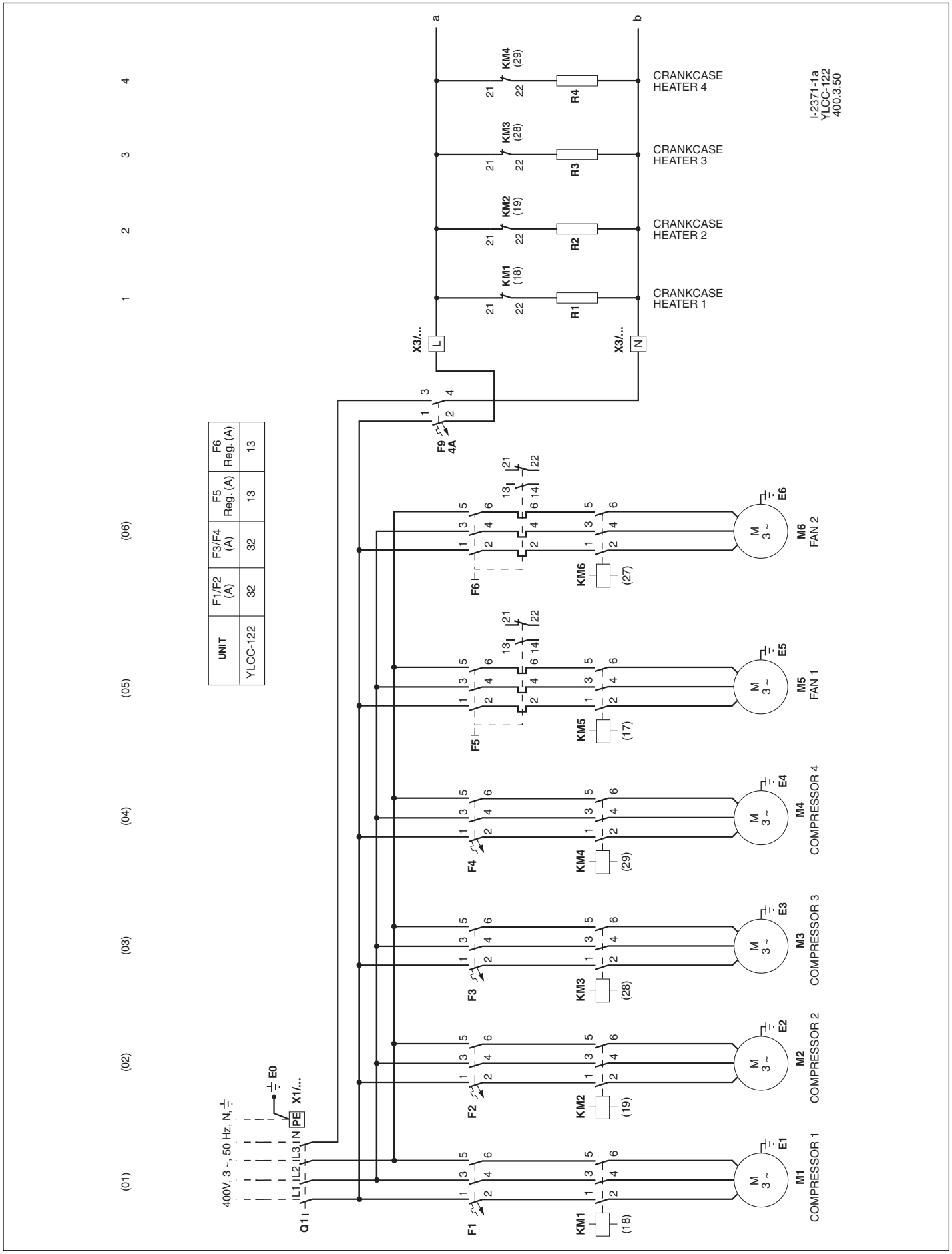
Wiring diagram, YLCC- 102, 400.3.50 (1 of 2)


I-2230-1b (1 of 2)
YLCC-102
400.3.50
MODE COMPRESSOR 2
MODE COMPRESSOR 1
CRANKCASE HEATER 2
CRANKCASE HEATER 1
SEE WIRING DATA TABLE FOR DIMENSIONING OF AUTOMATIC SWITCH AND POWER SUPPLY LINE SECTION
400V, 3 ~, 50 Hz, N, ⏚
M1 COMPRESSOR 1
M2 COMPRESSOR 2
M3 FAN 1
M4 FAN 2
UNIT | F1 (A) | F2 (A) | F3 Reg. (A) | F4 Reg. (A)
YLCC-102 | 50 | 50 | 9 | 9

Wiring diagram, YLCC- 102, 400.3.50 (2 of 2)

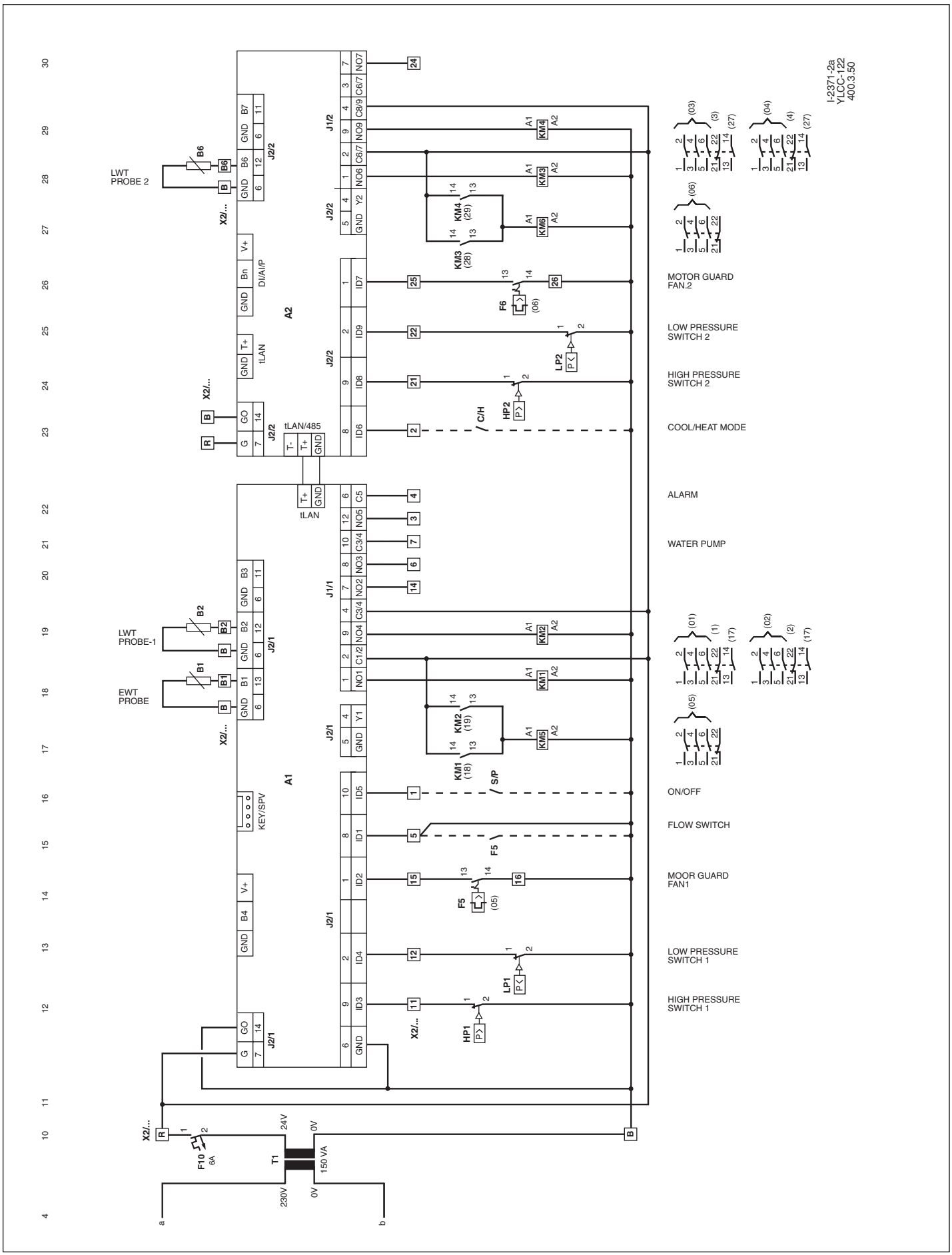


Wiring diagram, YLCC- 122, 400.3.50 (1 of 2)

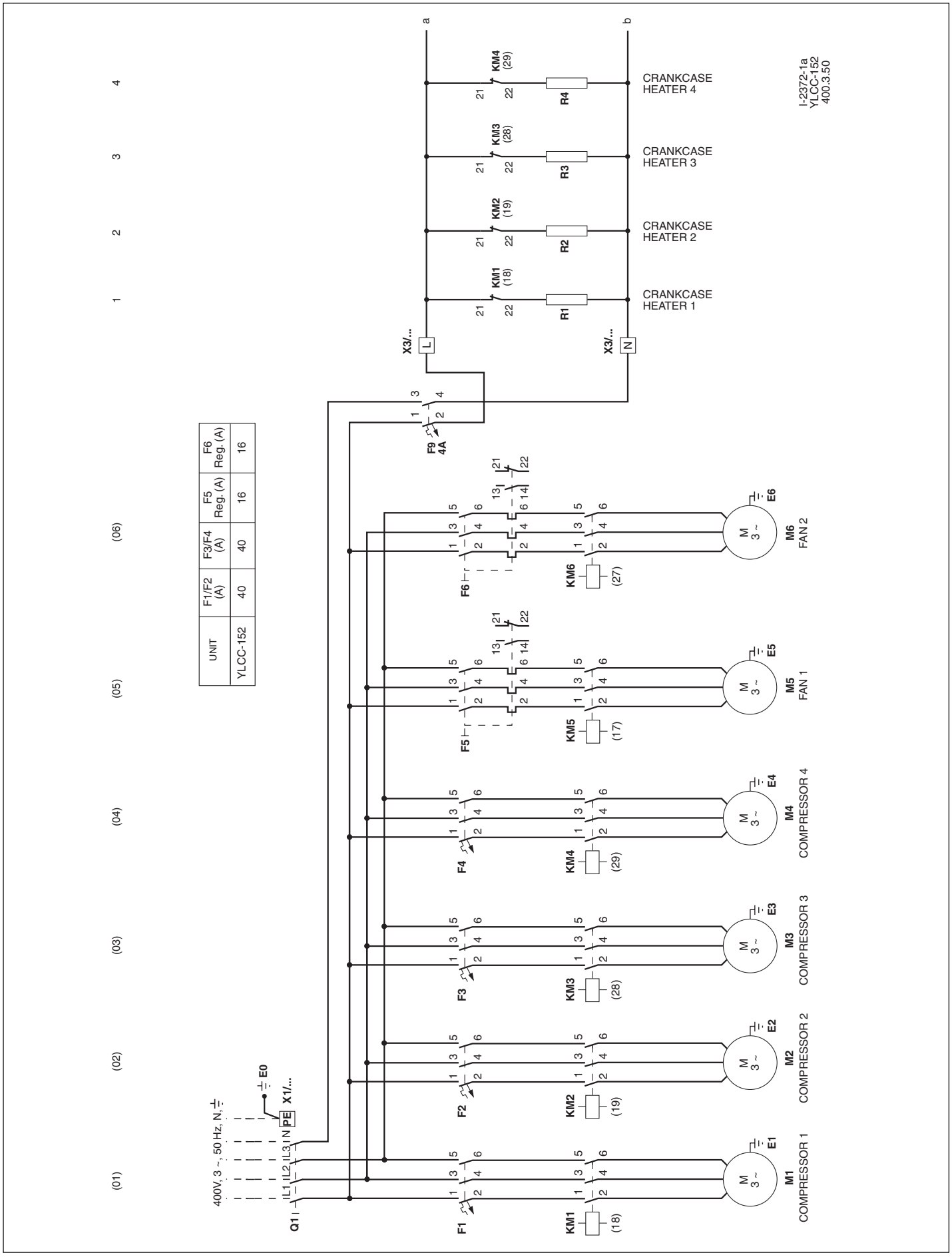


UNIT	F1/F2 (A)	F3/F4 (A)	F5 Reg. (A)	F6 Reg. (A)
YLCC-122	32	32	13	13

Wiring diagram, YLCC- 122, 400.3.50 (2 of 2)

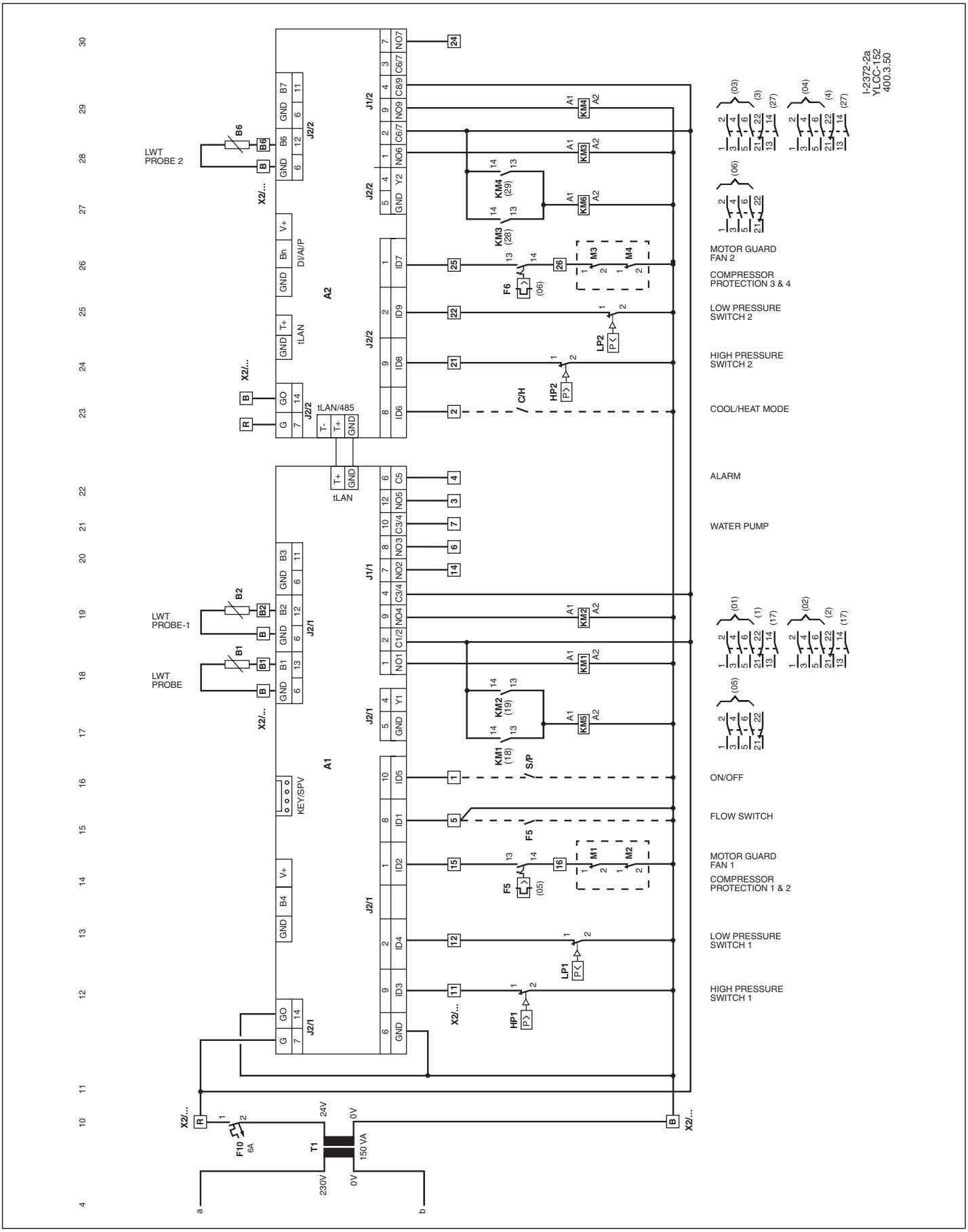


Wiring diagram, YLCC- 152, 400.3.50 (1 of 2)



UNIT	F1/F2 (A)	F3/F4 (A)	F5 Reg. (A)	F6 Reg. (A)
YLCC-152	40	40	16	16

Wiring diagram, YLCC- 152, 400.3.50 (2 of 2)



Data and measurements are subject to change without prior notice.

Ref.: Y-R70102 0205